REPORT.

OFFICE SEC'Y. OF IOWA STATE AG'L. COL. AND FARM,
DES MOINES, FEBRUARY 1ST, 1864.

To the Honorable Senate and

House of Representatives of the State of Iowa:

In pursuance of Law I herewith submit the following report, exhibiting the Receipts and Expenditures of the Iowa State Agricultural College and Farm, for the year 1863, with its present financial condition; also the operations of the office of Secretary for the year 1863:

RECEIPTS.

Their amount on hand as per settlement in January, 1863, in Bonds, Notes and County Orders,	$11,990 40
Received in notes of individuals for Jasper county lands,	1,419 20
" in cash for Jasper county lands,	1,512 00
" for sundry articles sold on farm,	20 17
	$14,941 77

EXPENDITURES.

Paid Oliver Mills, Treasurer, balance due on settlement, Jan. 1863,	$ 166 00	
Paid W. J. Graham, Agent on farm, balance due on settlement, Jan. 1863	10 00	
Paid Suel Foster, Pres't., con'g't expenses for 1863,	17 00	
" for wagon, cane mill, cow, &c., in notes of individuals,	76 18	
Paid for 40 acres of land, with individual note of W. J. Graham,	345 32	
Paid miscellaneous expenses on farm,	21 15	
" expenses of Agent to secure interest on Story county bonds,	12 00	
Paid expenses of Jasper county land sale, including advertising and printing,	129 69	
Paid on Farmers' House, carpenter work, and balance in hands of Agent,	737 44	
Paid John F. Dixon, cash, amount paid by him for Jasper county lands,	763 20	
The am't. due by Ag't. on farm, on settl'm't Jan. 1864	10 34	
" " of Story county bonds on hand,	10,000 00	
" " " " " orders " "	160 00	
" " " bills receivable for Jasper county lands on hand,	906 00	
The am't. of bills receivable, donated by citizens of Story and Boone counties,	1,118 94	
The am't. of cash on hand,	468 51	—$14,941 77

ASSETS.

The Institution has the following assetts, one-half of which, probably, might be realized within the next 18 months :

Story county bonds,..	$10,000 00
Interest due on Story county bonds,........................	1,400 00
Story county orders,.......................................	160 00
Bills receivable, donated by citizens of Story and Boone counties,	1,118 94
" " for Jasper county lands,....................	906 00
Jasper county lands, 2460 acres, cost $5 per acre,..............	12,300 00
Lands donated in Boone and Story counties, 731 acres, cost $5..	3,655 00
Due for rent on farm, &c.,.....	106 64
Value of crop on farm for 1863, ⅓ of crop for rent,..............	497 50
Value of old crop on hand, and due from individuals,.....	25 99
Cash on hand,..	468 51
	$30,638 58
Deduct from this amount due individuals,......................	82 08
Total assets,..................	$30,556 50

Although the following was embraced in a memorial to your honorable bodies, it may not be inappropriate in this report for general information, as it gives a brief review of the action of the Trustees since the organic law was passed, and the reasons why more has not been done towards preparing buildings for educational purposes :

In 1858 the Legislature passed an act appropriating 10,000 dollars for the purchase of a farm on which to locate an Agricultural College. A farm was purchased in 1859 in Story county, situated about midway between Nevada and Boonsboro, and about 30 miles directly north of Des Moines. The farm contains 648 acres and is admirably adapted to the purposes of the Institution, embracing all the leading varieties of soil in the State. No additional appropriation has been made by the State since the organic law was passed, but the county of Story donated 10,000 dollars in the bonds of the county, bearing 7 per cent. interest, and individuals of Story and Boone counties donated, in lands and notes, about 7,000 dollars additional. The organic law also diverted the five sections of land granted by Congress to the State for Capital purposes lying in Jasper county, provided Congress would consent. A recent act of Congress gave the control of the land to the State, which is now under the charge of the College Institution. These lands will probably produce about $14,000. This, with the sums mentioned, after deducting cost of a brick farmer house, frame barn, expenditures on the farm for breaking, &c., leaves something over $30,000 besides the farm.

The Institution is managed by a Board of Trustees which are appointed by the Legislature, one being taken from each Judicial district in the State, and embracing the Governor and President of the State Agricultural Society, being in all thirteen members. This Board serves without pay for their services, but are allowed mileage, same as members of the Legislature. Its officers are a President, pro tem., a Secretary and Treasurer, and an Executive Committee of three to act during the interim of the meetings of the Board.

It was expected that the Legislature of 1860 would have made an appropriation sufficient to commence the erection of suitable College buildings, but as the financial condition of the State would not justify it, an appropriation was not asked for nor was one made. At the session of 1862 an appropriation was not expected as the whole finances of the State were needed to meet the extraordinary expenditures incident to the suppression of the rebellion. Hence, nothing has been added to its prospective revenues. Since the Institution was organized, and for want of necessary means to build a suitable edifice to open a College the Board did not feel justified in using what they had to *commence* a building when they had not sufficient to *finish* it; but they have done what they deemed prudent in

opening a farm and erecting thereon buildings suited to a dwelling for a farmer and to shelter the crops, grain and animals used and fed upon it. It has never, however, been farmed except by a tenant, which was leased to him for a money rent for two years, and for a third of the product of the farm, for the third year, yielding altogether about $850, with an average of 100 acres under cultivation per annum. There is under cultivation now 147 acres.

The barn erected on the farm is a very substantial frame, 42 by 60 feet in size, upon a gentle slope of ground, with underground stables, built with heavy stone walls on three sides, eight feet high, 16 feet posts, with floor lengthwise, so that any length can be added at the south end.

The brick work of a Farmers' House, 32 by 42 feet, two stories high, with pantries and kitchen back, 16 by 24, one and a half stories, also brick, have been erected during the past two years. There is attached to this a wash-room, milk-room and wood-shed, 24 by 24, one story, of wood. The back buildings were erected in 1860 and finished; the front building was put up in 1861 at a cost of $950, besides the cellar and the brick. The inside of the main building is now being finished at a cost of about $700. It will be completed early in the Spring. Each story is nine feet high, of good brick on solid stone walls, with a cellar under the whole of the house.

Beyond the expenditures necessary to place the farm under a fair state of cultivation, the Trustees did not feel justified in making appropriations from the limited amount in their hands, but preferred reserving the best of the assets for an endowment to meet the expenses of the Institution when in operation, hoping that when it had the ability, the State would make the needed appropriation for College buildings. But during all this time the people of the State generally supposed that buildings were erecting and that the College would soon be opened to the public, and many applications have been made to receive students. Had it not been for the extraordinary condition of the financial matters of the State, such would doubtless have been the situation of the Institution on the opening of the present year, now about five years since the purchase of the College Farm. If all this could not have been done, a general expectation, or hope at least, was felt by its friends generally, that the farm would be opened for experimental husbandry. Even this could not be accomplished under the circumstances without involving an expenditure which was thought would not be justified by the people of the State, unless the College Institution was fully provided for.

In July, 1862, Congress appropriated to the several loyal States in the Union, for Agricultural Colleges, 30,000 acres of land, for each Senator and Representative in Congress. The amount under this grant, to the State of Iowa, was 240,000 acres. Any State accepting this grant is required by the terms of the grant to erect the necessary College buildings, without using any of the proceeds of the lands for that purpose, within five years from the time of the acceptance of the grant. The State of Iowa, at the Special Session in September, 1862, accepted this grant, with this and other conditions imposed therein. The lands have been selected by an agent every way competent, appointed by the Governor, and approved by the Board of Trustees of the College, as required by the accepting law of the State, and the Governor has forwarded the list of selections to the proper officer at Washington, for approval. As these selections were made under the instructions of the General Government, and in conformity therewith, they will doubtless be confirmed at an early day. They embrace some of the best unentered lands in the State, and when prepared for sale will command the attention of immigrants. As the interest on the proceeds of the sales of these lands is exclusively donated to meet the annual expenditures of the Institution, with a small exception for the purchase of lands on which to locate the buildings, there will be a fund soon created to sustain the Institution.

This munificent grant having relieved the Board from any anxiety in regard to the future endowment of the Institution, they felt that a portion of the reserved assets might safely be used to place the farm in a condition to experiment upon crops, the purchase of several of the leading races of improved animals of all kinds, and testing their value by crossing on native breeds, best mode of feeding, shelter, &c., and in beautifying the farm with useful trees and shrubbery, and preparing fully for the work contemplated in the establishment of such an Institution; the selection of a scientific farmer to take charge of the farm and the experiments required thereon, a committee of the Board have had under their charge during the past year, but could not come to any definite conclusion, neither did the Board take any action on this matter, but left the appointment of a Superintendent open until a day early in the Spring, when it will be absolutely necessary to make a selection to commence work on the farm.

Such is a brief history of the Institution under the management of the Board of Trustees which is almost exclusively confined to the farm and the operations thereon. The next point is the College proper, and the course of studies to be pursued therein, which are specified in the organic law as follows, with some other provisions in regard to the reception of students, &c.

SEC. 15. The course of instruction in said College shall include the following branches, to-wit: Natural Philosophy, Chemistry, Botany, Horticulture, Fruit Growing, Forestry, Animal and Vegetable Anatomy, Geology, Mineralogy, Meteorology, Entomology, Zoology, the Veterinary Art, plain Mensuration, Leveling, Surveying, Book Keeping and such mechanical arts as are directly connected with Agriculture. Also, such other studies as the Trustees may from time to time prescribe, not inconsistent with the purposes of this act.

SEC. 16. The Board of Trustees shall establish such Professorships as they may deem best to carry into effect the provisions of this act.

SEC. 17. Tuition in the College herein established shall be forever free to pupils from this State over fourteen years of age and who have been residents of the State six months previous to their admission. Applicants for admission must be of good moral character, able to read and write the English language with ease and correctness, and also to pass a satisfactory examination in the fundamental rules of arithmetic.

SEC. 18. The Trustees upon consultation with the professors and teachers shall, from time to time, establish rules regulating the number of hours, to be not less than two in winter and three in summer, which shall be devoted to manual labor, and the compensation therefor; and no student shall be exempt from such labor except in case of sickness or other infirmity.

The inquiry will naturally be made in regard to the cost of educating and sustaining a scholar in the College for one year. In the Farmer's College of Pennsylvania, the price for board, lodging, washing, fuel and lights, is fixed at $100 per annum. The cost in our institution would not exceed this sum, from which would be deducted the amount credited for labor on the farm. The tuition is made free by law.

BOARD OF TRUSTEES.

The following persons compose the Board of Trustees for 1864

President—Suel Foster, of Muscatine county.
Secretary—Wm. Duane Wilson, of Polk county.
Treasurer—M. W. Robinson, of Des Moines county.
Peter Melendy, of Black Hawk county.
W. J. Graham, of Story county.
C. E. Whiting, of Monona county.
Thomas Holyoke, of Powesheik county.
J. A. Bronson, of Jones county.
John McDonough, of Clarke county.
John Thompson, of Appanoose county.
Peter L. Hinckley, of Fayette county.

EX-OFFICIO MEMBERS:

Wm. M. Stone, Governor, of Marion county.
Geo. G. Wright, Prest. State Agl. Society, of Van Buren county.

CONGRESS GRANT OF LANDS FOR AGRICULTURAL COLLEGES.

The act of the Legislature accepting the grant of lands to the State of Iowa for the benefit of agriculture and the mechanic arts, requires the Board of Trustees of the Iowa Agricultural College to approve and sanction the lands selected for this purpose. The Governor reported to the Board the amount of lands selected as follows:

Number of railroad lands, acres, c. $2 50	40,543.25
" other lands, " c. $1 25	159,224.88
Total number of acres selected	199,768.13

On the acceptance and approval of these selections of lands, the Board of Trustees passed the following, unanimously:

"We have examined the same and concur therein, and adopt, confirm and re-receive them as the selection of lands granted to the State of Iowa under the act of Congress approved July 25, 1862."

The Board also recommended that the Governor of this State be requested to take all the necessary steps to obtain the final and necessary certificates, and all requisite evidences of title, through and by such means as to him may seem advisable, so as to have in the proper offices at the earliest day practicable such certificates and titles.

The Board having performed the duty imposed upon them by the law of the State accepting the grant of lands, it now rests with the Governor of the State and the Department at Washington to have the necessary titles completed.

OBJECT OF THE INSTITUTION.

The Iowa State Agricultural College has for its object, *to associate a high state of intelligence with the practice of Agriculture and the industrial or mechanic arts, and to seek* to make use of this intelligence in developing the agricultural and industrial resources of the country, and protecting its interests. It proposes to do this by several means:

1st. As a purely educational *institution*, its course of instruction is to include the entire range of the Natural Sciences; but will embrace most especially those that have a practical bearing upon the every day duties of life, in order to make the student familiar with the things immediately around him, and with the powers of nature he employs, and with the material through the instrumentality of which, under the blessings of Providence, he lives and moves and has his being: and since Agriculture, more than any other of the industrial arts, is important to man, and since, for the complete education of its principles more scientific knowledge is required than for all other industrial arts combined, it follows that this should receive by far the highest degree of attention. The course of instruction is to be thorough, so that it will not only afford the student the *facts* of science, but will discipline his mind to habits of thought, and enable him fully to comprehend the abstract principles involved in the practical operations of life. In doing this it is not deemed possible to educate every agriculturist, artisan, mechanic, and business man in the State, but to send out a few students educated in the college course, that they, by the influence of precept and example, may infuse new life and intelligence into the several communities they may enter. A single individual, who is thoroughly educated in the principles and practice of an art, followed by a community, will often exert a more salutary influence upon the practice of this art, by the community, than would result from sending the *whole community* to a school of lower order than that which he attended. A single *practical* school of the highest order in Paris (the Ecole Polytechnique), during the last generation, made France a nation celebrated alike for profound philosophers, great statesmen, able generals and military *men*, and civil engineers. If one high school of this *practical* character is established, subordinate schools, affording the elementary education of the latter, will follow in due time.

2d. As a *practical education* the Trustees of the Iowa State Agricultural College have adopted the fundamental principle, that whatever is necessary for man to have done, it is honorable for man to do, and that the grades of honor attached to all labor, are dependent upon the *talent* and *fidelity* exhibited in performing it. It is further considered essential *as a part of a student's education*, that he be *taught* the *practical application*, in the field and laboratory, of the principles he studies in the class room; and manual labor is also necessary for the preservation of health, and the maintenance of the habits of industry. An incidental, but not unimportant result of the operation of these principles is a reduction of the cost of tuition by the value of the labor, so that the college can take students at very low rates of admission.

All students, without regard to pecuniary circumstances, are therefore obliged to perform manual labor as an *essential part* of the college education and discipline and training. In these respects consists a most essential difference between the idea associated with manual labor and that of all other attempts made heretofore to combine manual labor with study. Instead of the idea of poverty and want being associated with those who labor, that of laziness and worthlessness is associated with those who refuse to work efficiently; and the experience of established institutions has already most assuredly shown, that no young man, of whom there is any hope for future usefulness in life, is insensible to the disgrace which thus attaches to the lazy, who will work only as they are watched, and cheat their fellow students by refusing to do their share of the labor assigned them; and nothing is more conclusively settled than that those students who are the most studious and industrious in class, work the most efficiently and are the most trustworthy in the performance of their daily work.

3d. As an *Experimental Institution*, our college has an unbounded field for labor. The principles of Agricultural Science, which shall ultimately constitute the subject of instruction in its class-rooms, will be a prominent and important branch of it. The development of no other department will yield richer and more lasting results, or confer more substantial benefit upon agricultural practice than this. Much time, however, is required to make thorough and reliable experiments—they will not pay at once; as well might the farmer expect to reap his crop the day he sows his grain. They will, however, ultimately pay a thousand fold, as have the practical application of the sciences of electricity, heat and optics, in the present day, paid for the half century of apparently unpractical, purely scientific investigations that led to the results now obtained through them.

EXPENDITURES OF THE SECRETARY'S OFFICE FOR 1862 AND 1863.

Seeds, plants, cuttings, roots, freight on and packing same,....	$ 677	68
Stationery, and printing circulars, &c.,..........................	99	11
Postage,..	170	31
Books aud office furniture,..................................	40	07
Printing, binding, and paper for 3,000 copies of Report of 1862,	73	60
Attending State and County Fairs, in and out of State for '62–3,	151	00
Miscellaneous,..	38	93
Total for 1862 and 1863,......................................	1,250	70

PURCHASE AND DISTRIBUTION OF SEEDS, PLANTS, &c.

The duties of the Secretary of the Agricultural College in regard to the purchase and distribution of seeds, &c., embraced in section 21 of the law providing for the Agricultural College, are as follows:

"He shall also have the custody of all books, papers, documents and other property which may be deposited in his office, including specimens of the vegetable and animal kingdoms of the State or county; also keep and file all reports which may be made from time to time by County and State Agricultural and Horticultural Societies, and all correspondence of the office from other persons and Societies, appertaining to the general business of husbandry; address circulars to Societies and the best practical farmers in the State and elsewhere, with the view of eliciting information upon the newest and best mode of culture of those products, vegetables and trees, etc., adapted to the soil and climate of this State; also, on all subjects connected with field culture, horticulture, stock-raising and the dairy. He shall encourage the formation of Agricultural Societies throughout the State, and purchase, receive and distribute such rare and valuable seeds, plants, shrubbery and trees as may be in his power to procure from the General Government and other sources, as may be adapted to our climate and soils. He shall also encourage the importation of improved breeds of horses, asses, cattle, sheep, hogs, and other live stock; the invention and improvement of labor-saving implements of husbandry, and diffuse information in relation to the same; and the manufacture of woolen and cotton yarns and cloths, and domestic industry in weaving, spinning, knitting, sewing and such other household arts as are calculated to promote the general thrift, wealth and resources of the State. He shall make a report in writing to the General Assembly at every session thereof, and to the Governor in each year when the Legislature is not in session, on the first day of February, of all transactions of his office of a public character, including a full statement of the receipts and expenditures of the college and farm, and of his own office, and at such other times as the Governor or Legislature may require."

In pursuance therewith, I have the honor to submit a report of the transactions of this office for the past two years, and since my last report to the Legislature of this State.

In 1862 there were packed and distributed 600 two-quart bags of Sorgho and Imphee; 200 bags of barley, containing from two to three quarts; 10 bushels of Soule's Winter Wheat, in bags of from one to two pecks; 6 bushels Mediterranean (winter) Wheat; 50 packages of several varities of Winter Wheat from Patent Office; 450 Concord Grape roots; 150 Linnæus Rhubarb roots; 900 Houghton Seedling Gooseberry roots; 2,000 Osier Willow cuttings; 300 packages of African Spring Wheat in bags of about two or three pints; 4,550 packages of vegetable seeds, and 1,000 packages of seeds from the Patent Office, making in all about 7,000 packages of all kinds. About three-fourths of these were distributed through the members of the General Assembly of that year.

In 1863 there were packed and distributed 1500 packages of Tobacco seed, in from one to eight ounce packages; 500 packages of Egyptian Spring Wheat, in three to eight ounce packages; 500 packages of Sorgho and Imphee seed, in six to twenty ounce packages; 400 packages of Cranberry Plants, from twenty to thirty in each; 200 packages of Hemp Seed, in three to six and eight ounce packages; 500 packages of Cotton Seed, in two to eight ounce packages; 15,000 White Willow cuttings, from twelve to thirty in a package; and 4,000 papers of vegetable seeds, one-third of which were from the Department of Agriculture, Washington—being about 8,000 packages of all kinds.

Distributed for the year 1862 and 1863, 15,000 packages.

In regard to the success of the distributions of 1862, I regret that I have no specific reports, except verbally. Of the grapes, rhubarb and gooseberry roots, I learn that they generally succeeded well in every section of the State, the Concord proving very hardy and a variety which may safely be recommended as one worthy of general cultivation. They were procured from the nursery of James Smith & Son, near Des Moines, who have fruited them for several years, and been eminently succesful in their cultivation. It will not be many years until we see this favored variety, as well as many others, growing upon every farm in the State.

In regard to the Sugar Cane seed distributed from this office, especially in 1862, we have the most gratifying reports, that it was the best ever grown in the State since it was first introduced. The

product of that seed promised to supply all the wants of the State this year, and would in all probability, have done so if the extraordinary frosts in 1863 had permitted the seed to ripen.

After diligent inquiry I have succeeded in securing about two barrels of two approved varieties of Sorgho, one of which is the Otaheitan, which will be distributed this Spring principally through the members of the Legislature.

Of the distribution of plants, cuttings, seeds, &c., in the year 1863, I can present the experiments of many of the recipients, yet not as many as there should have been from the pledges made to this office, when they were applied for, that full reports would be given. They were sent to from between 600 and 700 parties, societies and clubs, in ninety-two counties of the State, on special application. Of these about 300 were especially addressed in September last, for reports, and replies received from only the following parties, embracing fifty-two counties. As they are referred to by their initials in the subjoined extracts from their reports, it is deemed appropriate and due to them that their responses should be thus acknowledged, especially where so many have failed in their duty in this matter:

Adair County—J. Loucks, Jefferson township; G. F. Kilburn, Fontanelle.
Benton County—C. C. Fike, Gomersall.
Boone County—J. H. Boggs, Boonsboro
Buchanan County—S. Croxton, Jessup; Harvey Griswold, Winthrop.
Butler County—P. P. Parker, Parkersburg.
Cass County—John C. Carmon, p. o. address, Hamlin's Grove, Audubon county.
Cedar County—Frederick Ohl, Gower township.
Cerro Gordo County—Leonard G. Parker, Mason City; Thomas Perrett, Shellrock Falls.
Chickasaw County—Buel Sherman, Fredericksburg.
Clayton County—George Christ, Elkader.
Clinton County—A. C. & S. C. Brown, Elk River.
Dallas County—Ephraim Williams, Adel; L. D. Hewitt, Redfield.
Davis County—Geo. N. Rosser, Troy.
Decatur County—Samuel Forrey, Leon
Delaware County—A. Mead and A. S. Blair, Manchester; Isaac Littlefield, Hopkinton.
Dubuque County—Oliver Wheeler, Rossville; E. Jewett, Tivoli.
Fayette County—E. W. Fox and Chas. Hoyt, Fayette; Joseph Marsh, Taylorsville; Joseph Pritchard, Eden; James George, Dover.
Franklin County—A. F. Townsend, Union Ridge; Samuel Carbaugh, Maysville.
Fremont County—D. S. Ackerman, McKissock's Grove.
Hardin County—J. D. Thompson, Eldora; W. H. Gager, Union; A. M. Mulford, New Providence.
Harrison County—L. D. Landon, Little Sioux; A. M. Servis, Jeddo City.
Hancock County—J. M. Elder, Upper Grove; H. A. Niles, Ellington.
Henry County—Wm. Faulkner, Mt. Pleasant.
Humboldt County—Eber Stone, Lott's Creek.
Iowa County—N. Baldwin, North English, Ezra Tufts, Stellapolis.
Jackson County—D. J. Bonham, Maquoketa; E. L. Umbarger, Monmouth.
Jefferson County—E. W. Warner, Libertyville; J. M. Shaffer, Fairfield.
Johnson County—Abel Evans, Shueyville; C. C. Townsend, Orphans' Home, Iowa City.
Keokuk County—L. Ellis.
Kossuth County—Joseph Raney, Irvington.
Lee County—A. Wright, Dover.

Linn County—J. H. Ross, Kingston City.
Louisa County—L. D. Hurley, Wapello.
Marion County—H. Neyenesch, Pella.
Marshall County—A. Logan, Edenville; Thos. Mercer, Marshalltown.
Mills Countg—Wm. H. Converse, Inonawa.
Mitchell County—Sidney Smith, Mitchell.
Monroe County—F. W. Breckenridge, Albia.
Muscatine County—Luke Cockshoot, Wilton Junction.
Page County—S. H. Kridelbaugh, Clarinda.
Powesheik County—L. C. Rouse, Grinnell.
Shelby County—Mansel Wicks, Harlan.
Tama County—N. C. Rice, Wolf Creek.
Van Buren County—Ira Phillips, Kosauqua; Howard Morris, Vernon tp.
Warren County—J. M. Strong, Indianola.
Washington County—T. N. Weeks, Washington.
Wapello County—Wm. De Tar, Eddyville.
Wayne County—D. M. Clarke, New York; I. W. Tabler, Clio.
Webster County—Geo. C. Goss, Border Plains, H. E. Boardman, Ft. Dodge.
Winnesheik Counnty—Benj. Vaughan, Ft. Atkinson.
Wright County—G. A. McKay, Goldfield.

EGYPTIAN WHEAT.

The letters received in regard to the Egyptian Wheat, report *full success* with 26, partial success with 12, and failures with 8. Causes of only partial success and failures: Drouth, 8; rust, 6; chinch-bug, 3; rabbits, 2, and fowls, 1. The following extracts are given to show the general estimation of the wheat, plan of cultivation, &c., &c.:

H. L. W., of Adair Co., sowed in the middle of a field of Tea wheat; the chinch-bug destroyed the Tea wheat, but he saved all the Egyptian by cutting it before perfectly ripe, to save it from the bug. "Judging from the beautiful broad ear and plump berry, I think it can not be surpassed by any other spring wheat. I sowed about three pints from the seed you sent me. I will sow this in a spot by itself next year."

C. C. F., of Benton Co., had good success for the season; a heavy hail-storm cut it all to pieces, but it averaged five ℔s. per oz.

L. D. H., of Dallas Co., says "his wheat did very well, although struck with the rust, which I attribute to drilling and hoeing—[Singular reasons.—Sec.]—and being such a small patch; the grain is shriveled."

G. N. R., of Davis Co., reports, "considering the season, it certainly gave a very good yield—from eight to ten fold."

C. W. M., of Delaware Co., says, "considering the drouth it did very well—yield, 8 pounds clean wheat. We see but one difficulty with it, and that is, in a wet season the heads, we fear, will mould in the field or grow before they would dry, as the heads are so large, and several smaller heads growing out of the main head. I think it will yield well, and is certainly the fairest wheat I have seen in Iowa. It is very hard to shell." J. L., of same county, says of the 8 oz. seed received, he harvested nine pounds—thinks he would have had more but for the chinch-bug. He cut it before the seed was ripe. The seed, he thinks, was mixed when received. He thinks it a good thing, and will sow all he has next year."

O. W., of Dubuque county, says, "this wheat is considered a failure and a humbug about here;—they can not thresh it with a machine."

E. W., of Fayette Co., says, "the wheat is good. I have two quarts of it. Some of the heads were destroyed by a very small white worm which I found in the first joint from the head." C. H. of same county, reports that his produced well in the garden, cultivated in rows, but is uncertain how it will do in the field." J. G., of same county, says his was doing very well until the rabbits destroyed it. He thinks it will prove very successful in that part of the State, as one of his neighbors raised twenty bushels from three pecks sowed on half an acre, new ground. He thinks it would do better on older ground, as the straw grew very rank and tall, and fell down considerable. I should like six bushels to sow next year."

A. F. T. of Franklin Co., says: "The Egyptian wheat is a success. My father-in-law, with whom I reside, got three pecks of what was called Minnesota Spring Wheat. They are identical. The heads contain, I should think, two or three times as many kernels as the ordinary wheat; without doubt this kind will yield two or three times as much to the acre. With you, I do not think the raising of wheat to be profitable to Iowa farmers, but beginners with small capital, or *none* at all, seem obliged to do so at first; to them I say most earnestly, give the Egyptian or Minnesota Spring Wheat the preference."

J. D. T., of Hardin Co., reports: "I sowed the E. Wheat on a sandy loam, and from the sack received I think I have about one-half bushel of elegant wheat. So far as I can determine, it is a very valuable acquisition to the many choice varieties now raised in the State. The straw is very strong, and the heads large. I sowed it thin, and in some instances harvested ten full formed heads from one berry." A. M. M., of same county, says "the wheat did well and is a very nice article—grows thrifty with ordinary cultivation, and yields extremely well. As far as my experience goes with it, I think it a valuable acquisition, but prefer to test it further before investing much in it."

L. D. L., of Harrison Co., says "the E. wheat did well. It is not threshed, but it is estimated to have yielded from 150 to 200 per cent. The grain is good and the straw is firm, which is an important item here on Missouri river bottom land."

E. T., of Iowa Co., had very good success—he likes it very much. Wants to know where he can get a quantity for sowing next year.

E. L. U., of Jackson Co., received five oz. of wheat—sowed it thin, which he thinks a mistake—gathered about one gallon and not a very poor berry. The black rust struck it before it was matured. He will try again, as he thinks it will do well in a favorable season.

A. E., of Johnson Co., writes that his wheat grew well and matured heads containing as high as 75 grains, but the rats have eaten his whole crop.

A. W., of Lee Co., "sowed his E. wheat April 3d, the day after sowing the Goose wheat. It was not ripe enough to cut when the Goose wheat was harvested. The grain was not as well filled as the Goose wheat which yielded ten bushels to the acre. The drouth, I think, was the main cause of its not filling. He intends sowing next year all he raised and a few bushels more if he can obtain it."

H. N., of Marion Co., reports "that I think the E. wheat, as also some of my neighbors who saw it, a valuable addition to that generally sown here. It succeeded perfectly both as to quality and quantity. Some of the farmers besides myself wish very much to know where and at what price more can be had. The sample received seemed to be a mixture of four kinds. The principal part, which I think to be the Egyptian, was splendid, another was what seemed to be Goose wheat, and another a winter variety, as it did not produce any grain. The Egyptian I kept scrupulously apart."

W. H. C., of Mills Co., says: "The E. wheat, as I surmised, is similar to the kind I have cultivated for three years. I have three varieties, the most prolific of which is the *Blé de Smyrna*, from the Mediterranean coast; the most farinaceous is from Carson Valley; still, on the whole, I think the variety I received from you is the surest. I sowed on the 10th of March in ten inch drills and hoed it twice; harvested July 19th. The grain was somewhat shrunken by reason of rust. The product I have estimated at seven quarts."

L. C. R., of Powesheik Co. says "the E. wheat produced very well, but so small a quantity was sown I am unable to form a very definite opinion in regard to its productiveness—yet I think it will make a good variety, and perhaps will supercede most other kinds."

N. C. R., of Tama Co., says "the wheat was applied for the township Ag'l Club, and was divided into four parcels. Mr. S. had one which he added to more sent by you to him direct, which yielded at the rate of 33 bushels per acre."

T. N. W., of Washington Co., reports but partial success, in consequence of rust. From 24 oz. of wheat he secured 12 lbs.

W. D. T., of Wappello Co., says "the E. wheat has given me entire satisfaction."

D. M. C., of Wayne Co., reports very great success, much beyond his expectations.

Geo. C. G., of Wayne Co., writes: "You sent me two packages of wheat; I sowed it thin to have it stool more; the season was so dry that it could not protect itself, hence it did not do very well. About one-third or half was not Egyptian wheat, (when will people stop cheating?) the rest was heavy headed and promises well. It has a stiff straw. I can tell more about it on another trial."

J. C. C., of Wayne Co., says: "I sowed two weeks later than other wheat on new plowed land, and harrowed it in in the usual way. It was ripe a few days later than my other wheat; rusted some; yielded good. I shall sow next spring earlier. I think it a good wheat. One of my neighbors wants a quantity for sowing in the spring.

TOBACCO.

The reports give 20 as successful, and 5 as partial success; of failures 11. Causes of only partial success and failures: seed not sprouting 6, frost 5, hail 4, drouth 4. The following extracts from the reports are given for general information:

C. C. F., of Benton Co., says his tobacco averaged about 1500 lbs. per acre.

H. G., of Buchanan Co., set about 400 plants. "It is late but they have a good growth, Sept. 14: if this weather holds ten days longer it will mature all right." [But it did not, hence, doubtless, a failure—Sec'y.]

F. O., of Cedar Co., says his seed came up after a long while. They were doing well Sept. 15.

A. S. B., of Delaware Co., says tobacco was doing very well until cut off by August frost.

E. W. F., of Fayette Co., reports that his tobacco did well, ripened early, and is of good quality. Don't state the variety. C. H., of same county, says, of date Nov. 10, "the tobacco seed received from you did well notwithstanding the drouth and frost. It will prove an excellent variety for this soil and climate." Sorry he did not state the variety. J. G., of same county says: "I tried the tobacco on a small scale; a hail storm in August cut it all to pieces. The frost did not hurt it until the one we had in September. I think it will do well here, and shall try it on a large scale next year."

A. F. T. of Franklin Co., reports: "I planted only a part of the tobacco seed for experiment. I found it a reality. The plants were secured before they were injured by the frost. Next year I intend planting more largely. Several acres were set out in the neighborhood, all of which was successfully housed. I think a considerable quantity will be raised next year in this township."

D. S. A., of Franklin Co., says: "The tobacco seed I sowed March 2d. The Connecticut came up well, the Maryland not so well. Got but 50 plants of the latter. May 22d, set out 600 plants—June 8th set out the remainder, making in all 1800 plants. All grew fine until about July 10th, when we had a severe storm from your region or the north-west, which damaged the first planted. August 10th harvested the first planted ripe; the remainder, which were most beautiful plants, were injured by the frost in August. I am well satisfied that the above named varieties are a great acquisition and will succeed in ordinary seasons. I grew some plants in seed beds for seed and sowed some." [This is an intelligent report—Sec'y.]

J. M. S., of Jefferson Co., reports: "I divided the tobacco seed into 300 packages and distributed them with care. I have no circumstantial report, but fear that the result was not favorable."

A. E., of Johnson Co., says, "that owing to the drouth the seed did not come up well—what few did come did well."

J. H. R., of Linn Co., reports: "I only got out five acres of tobacco that lived. What did come is as nice as any I ever saw. I shall probably have 1200 lbs. to the acre."

H. N., of Marion Co., reports as follows: "As to tobacco, we will take this matter right in hand. I guess there are not less than fifty individuals in this township who tried it this season, and succeeded more or less. As I wrote you in the forepart of this year that I intended to grow it myself, notwithstanding the severe drought, I succeeded satisfactorily. Though I intended to set out some three or four acres, I could only get about two acres started, and that with the utmost difficulty to keep the plants alive, which could only be done by repeated watering. After the rain they grew so tremendously that I had a perfect success. From a careful calculation I expect to have about 4,000 pounds dry tobacco, which will be of excellent quality, as it is curing a fine yellow or red color. The frost in the latter part of the season did not injure it in the least, as it was not severe here; yet about a month ago (Sept. 16th) we had another cold snap which was more severe, and killed a great part of the tobacco which was still in the field. Mine was at that time nearly all housed. I think we will have here this year about 10,000 pounds lbs. ready for market. If I succeed in selling it at fair prices, tobacco-growing here will get a good start next spring. On account of the generally cold weather here this season, I can only dry the tobacco by stripping off all the leaves instead of drying them on the stalk, although the latter is more expensive, which is more sure."

I. P., of Van Buren Co., says: "The tobacco seed came up but poorly in consequence of the drouth. I have grown over 100 plants, but they are not all matured yet, (Sept. 21). It has done finely since our August rains."

W. D. T., of Wapello Co., reports: "Tobacco did well considering the season. I believe tobacco will be the most profitable crop that can be raised in Iowa. I have raised tobacco, more or less, for 22 years. I had some in 1842 that measured on an average 20 inches wide and 30 inches long."

E. J., of Dubuque Co., says: "I prepared the ground and sowed

the seed as soon as the frost would admit. It germinated and appeared in four weeks. I began to transplant the forepart of June, but the drouth and insects were so bad I had nearly given them up, until the rains came. I harvested a tolerably fair crop, and had it all secured in my barn a few days previous to the hard frost on 18th Sept. The previous frost did not injure it."

I. C. C., of Wayne Co., says the tobacco was not injured by frost.

S. H. K., of Page Co., writes "that it was a hard matter among our most experienced tobacco growers to get seeds to grow last spring; hence, plants were scarce. Some, however, succeeded in growing a fine crop, but much of it was injured by the frost of August 25th.

CRANBERRY PLANTS.

The following experiments are reported in regard to the Cranberry plants distributed in 1863, the variety being the bell shaped, procured in Connecticut:

Adair County—J. L. Set them out in a bed prepared for them with sand, good black soil, and my wife attended to watering them, but the dry weather was too hard for them. Next spring I would like to try them in a different way. G. F. K. says, the cranberry was affected by the drought, but some of them are alive; another year may bring it out all right.

Benton County—C. C. F. says, the cranberry will not succeed here, as the soil is not sandy enough, and it was too dry for every thing.

Boone County—J. H. B. says, the cranberries are doing well, having about 60 plants growing.

Buchanan County—S. C. says, the cranberries did well until the middle of July when it was so dry they all died. H. G. says he has only five or six plants alive, which look healthy and good, but it has been too dry for them.

Butler County—P. P. P. says, the cranberry plants were set out in a spring slough, ground well worked, and generally quite wet, but the drouth this summer baked the ground, yet some of the plants lived through it.

Cedar County—F. O. says, the cranberry would have done well but for the drouth. He set them in a piece of bottom land at the edge of a little run, where he thought the soil would be quite moist, but the run dried up, yet the plants are alive, Sept. 15.

Cerro Gordo County—T. P. says the cranberries are nearly all dead, only some five or six plants living. They were watered frequently, but the drouth was too severe for them. Wants more next spring.

Chickasaw County—B. S. says, some of the cranberries lived, and intends to persevere until he succeeds.

Clayton County—G. C. says the plants were dead when he got them.

Clinton County—A. C. & S. C. B. say the cranberry has done middling well, but they could not exactly adhere to directions for cultivation.

Dallas County—E. W. says, the cranberries all lived but have not made much of a growth owing, he supposes, to the drouth. The soil was prepared by spading up and then covered with sand to the depth of three inches, but the soil selected was a little too dry this season. L. D. H. says that had it been a wet or a common season they would have done well enough. I put them in the wettest place I had, which was too wet in a common season for corn, but I believe they are all dead. I had too much other business to keep them wet all the time.

Davis County—G. N. R. says he does not think he has any ground suited for the cranberry, yet has no doubt the plants would have lived had it not been for the excessive drouth; indeed they had no chance at all.

Decatur County—S. F. says he followed directions as near as he could, but the dry weather killed them.

Delaware County—C. W. M. says his neighbor, Chapman, planted them in a low wet piece of ground, most of them have grown and are alive, Sept. 16. He thinks they will do well. A. S. B. says the plants did well until cut off by drouth. I. L. got 14 plants, six of which are alive, but not grown any.

Fayette County—E. W. F. received 25 plants, 20 of them are alive, have grown about a foot, and one ot them blossomed. Wants more. C. H. says the drouth killed his plants. J. M. says the drouth also killed his plants. J. P. says he can hardly tell how the cranberry will succeed in consequence of the drouth, but believes they may yet do well. J. G. says he planted in a low marshy piece of ground which has always been wet and moist until this year; it was black sandy loam; prepared it before planting, but the ground dried out and baked, consequently lost the plants; could not follow directions explicitly.

Franklin County—S. C. says the cranberries did very well until the dry weather set in.

Fremont County—D. S. A. writes that he planted the cranberry by the creek side where they grew some 15 to 20 inches. I think they will do well.

Hardin County—J. D. T. says the severe drought nearly killed the cranberries. He barely made them live, but hopes to report more favorably another season. A. M. M. says the plants have done well, and that nearly all of them are living notwithstanding the exterme dryness of the season. I am confident of success. I shall use my plants to propogate from them.

Harrison County—L. D. L. writes that the cranberry was a failure with him for want of a suitable spot. A. M. S. says the plants did well considering the drouth. I followed directions. At this time Oct. 18th, they look well, but how they will stand the winter is yet to be determined.

Hancock County—H. A. N. says the cranberries have in some instances barely lived, and in others died. They were planted on rather moist land composed of muck and sand. Thinks they will not thrive on such land.

Henry County—W. F. says his plants failed on account of dry weather.

Humboldt County—E. S. writes that he divided his into five nearly equal parts, retaining one himself, distributing the others to neighbors. They have grown about the same with the somewhat different methods of cultivation. They have mostly lived, but have grown only from one to three inches in length. He planted some in the garden on high land and the rest on a piece of wet, low land. Those on moist ground have done best. They are adapted to our cold climate, and he has no doubt they can successfully establish them in and about their sloughs.

Iowa County—N. B. says about one-half of his plants are yet alive, (Sept. 17) but they have grown very little. E. T. says that owing to the severe drouth they completely failed with him.

Jackson County—D. J. B. writes that his plants are doing well notwithstanding the great drouth.

Johnson County—C. C. T. says the cranberries did very well until the frost came. Wants more next spring to give them a more thorough trial.

Keokuk County—L. E. says the cranberries all died, owing to the uncommon drouth.

Kossuth County—J. R. says his are not doing very well, although he has 14 plants living. They were planted in the best place he had, where the water usually stood within eight inches of the surface, but this year it sank three or four feet below.

Lee County—A. W. writes that he planted his along a slough, they grew awhile and then died on account of the drouth.

Marion County—H. N. says the cranberries had a very unfavorable season. Fears he cannot raise them successfully, as the land is too high and dry.

Marshall County—T. M. writes that the cranberries were planted in dry or common garden soil—were well watered, and have made considerable growth. He thinks, from indications, they can be raised on common upland soil. Vines, Sept. 16th, were about six inches long.

Mills County—W. H. C. says the plants were received April 14th, and carefully planted in an excellent situation. In the course of six weeks about twelve of them showed signs of thrift, when the drouth set in, which caused the failure of the spring that supplied the marsh, which resulted in a total loss, although they were watered for some weeks. Thinks they were too long in the package for planting. Would like to have more for another trial.

Mitchell County—S. S. reports had success with him. He planted them in a moist situation, where they took root, but grew very little; that they are healthy looking, and has hopes of them next year.

Monroe County—F. W. B. reports utter failure, owing to drouth.

Muscatine County—L. C. says he thinks the plants would have done well, had the season not been so dry. He covered them slightly with sand and at first thought they would do well.

Poweshiek County—L. C. R. put pulverized muck in a slough, of sufficient moisture he thought, but the plants never grew. He doubts the adaptability of the Cranberry to upland, and feels that he has much to learn before he can succeed. Where they sprouted the drouth soon dried up the roots; for the same reason he lost three acres planted in maple and locust.

Tama County—N. C. R. planted his near a small creek, about ten rods above high water mark; they grew well until the drouth, when they died. He watered them, but thinks it did more harm than good.

Van Buren County—J. P. followed the directions as near as possible, but the drouth killed all but one. I watered them a good deal during the summer and covered the surface with sand. H. M. selected the most suitable place, as he thought, on his farm; spaded up the ground to the depth of twenty inches; set out vines according to directions, but they had not rain enough on them since planting to wet the roots. A few barely lived.

Warren County—J. M. S. having no ground suitable did not succeed.

Wayne County—D. M. C. says his experiment has been nearly a failure, which was probably owing to extreme dry weather. He is anxious to try again. J. W. T.'s plants died out on account of dry weather and want of proper attention.

Winneshiek County—B. V. has nearly half of his alive, and had it not been for the drouth, thinks he would have saved all, for they are as green (Oct. 4,) as when taken up.

Page County—S. H. K. says they were planted in a spring branch carefully after directions, but they failed.

Wapello County—A. D. H. put out the plants according to directions, on heavy clay upland in timber, but owing to the drouth, I found they were going to die. I then commenced watering, and spent a great deal of time in watering, yet I believe they are all dead.

From all the above I have no doubt that in proper locations, with the right kind of soil, and good attention, the Cranberry can be successfully grown in Iowa, and further attempts will be made by this office, with the Bell or other varieties.—[Sec'y.]

WHITE WILLOW CUTTINGS.

The reports in regard to the success and failure of the White Willow Cuttings exhibit the full success of three, partial success of twelve, and entire failure of twelve. Reasons for failure: Drought, 15; received in bad condition, 7; carelessness, 1.

E. S., of Humboldt county, says: "I set the cuttings in the garden. Owing to the dry Spring weather, only about half of them lived, but they have grown well for a dry season. They range in height from about two to four and a half feet, and are in a very healthy condition. For me, this Summer, in comparison with cottonwood cuttings, they have made a smaller growth, with Balm of Gilead about the same, and with Lombardy Poplar a larger. The wood is more compact, and I think will make more valuable timber than either. The beginning is encouraging, but only future experience will establish confidence."

G. F. K., of Adair, writes that his cuttings were affected seriously by the drouth, "but I think the cuttings sent from the State office did as well, and perhaps better, than other cuttings sent directly from the nurseries. Our farmers have great confidence in it, and believe it to be no humbug."

A. D. H., of Wapello county, says: "The willow I gave to my neighbors, who had poor success, probably owing to the drought. I have no confidence in it."

E. J., of Dubuque county, reports: That the 20 slips of willow nearly all sprouted, some eight or ten inches long, but the long protracted drouth finally killed the whole of them.

Much dissatisfaction has been expressed throughout the State in regard to the Willow cuttings obtained from many of the agents who had them for sale. They are believed not to be the variety they were alleged to be, but something very inferior; and doubtless such was the fact, as it was almost impossible to detect any deception. Hence the failures were more general than is given above. *Purchasers of cuttings should buy of no person who is not satisfactorily endorsed or who has not a good reputation as an honest dealer.*

COTTON.

The reports of experiments in growing cotton, exhibit the full success of *four*, partial success of nine, and twelve failures. Causes of failure: By drouth, 8; from frost, 7; cut worm, 1.

W. D. T. of Wapello county, says "the cotton grew as well as could be expected for a dry season, the worms and what all cotton raisers call the *scab*; but I have learned a preventive for both, which is to soak the seed in a solution of strong ashes and water."

D. J. B. of Jackson county writes that the cotton failed, owing to the great drouth and early frosts; but in one respect it was not a failure, which is "that in ordinary seasons it can be produced in Iowa in sufficient quantity and quality for the home raw cotton consumption. My plants resisted the power of frost until ice formed half an inch thick. The seed was planted on the 10th of May and frost-bitten in August, when full of pods. By starting in hot-beds so as to transplant by 10th of May, cotton will succeed in Iowa. To transplant a field of cotton is no more labor than to transplant a field of tobacco."

S. H. K. of Page county, says "the cotton was distributed to old Tennessee growers; grew fine and would have made full half a crop, had it not been for the early frost."

IN REGARD TO WINTER WHEATS DISTRIBUTED IN FORMER YEARS.

WINTER WHEAT.—Some six or eight years ago, and previous to that time, winter wheat was grown in this State to some extent, in every one of the older settled counties, and in a few counties one or two individuals in each, for ten or twelve years have been successful, excepting only one or two years of that period, in obtaining remunerative crops. But subsequent to that time, until within the past two or three years, the growing of winter wheat has been almost entirely abandoned in this State, and in most of the newly settled counties it never has been grown. Our winters, or rather our changeable early spring months, and where sown on wet soil, have killed the roots to such an extent, in consequence of their exposure from the heaving of the soil, and being unprotected by snows, &c., that it was thought to be a serious barrier to raising winter wheat. Where the soils cultivated for this purpose were new and light, this heaving process was more liable than in those which had been under constant and thorough cultivation for four or five years, causing them to become more tenacious. But there are other causes of failure which our farmers have found equally as serious if not more serious than those named—amongst them, the want of deep plowing, and early and deep sowing. Where the three latter are observed, and the seed is well covered in the ground *before* the first of September, there is seldom a failure of a crop of wheat, at least equal in yield, and was generally twenty-five per cent. greater than the yield of spring wheat for that year. Where our farmers have been persistent in their efforts from year to year, they are making the raising of winter wheat a flattering success, and there are some in every section of the State, both on prairie and timber soils, who are determined to grow the winter varieties as their principal crops hereafter.

Ever believing that the soil of Iowa, if properly treated, would produce winter wheat more remuneratively than spring wheat, I

have urged our farmers for years past to give it a fair trial, but have not been very successful, until within the past two or three years, notwithstanding the best and most hardy varieties have been obtained from Europe and different sections of this country, and placed in the hands of those reported to me as amongst the best and most successful farmers of the State. The varieties were principally the *Red Mediterranean* and *White Mediterranean*, (both imported), the *Purkey White*, from Ohio, the *Early May*, from Kentucky, and the *Soules*, from New York. The Purkey White was recommended as the best yielding, and most beautiful wheat then in Ohio, and weighing in some instances as high as 72 pounds to the bushel. The two bushels received were equally divided between two parties, one in Polk county and one in Benton county; owing to careless culture, or some other reason, they failed to produce enough for future sowing. Their faith in winter wheat was not sufficient, perhaps, to encourage them to persevere carefully; so this effort was totally lost. With regard to each of the other varieties, their success has been such as to cause the seed to be sought for from every part of the State where their good qualities were known, and for the Red Mediterranean, large orders have been sent from Illinois to parties growing it in this State, stating that there was no winter wheat in Illinois that could compare with it. This wheat was a direct importation from the Mediterranean for this office, and from its superior character to the Red Mediterranean heretofore cultivated in this country it is doubtless a superiority variety of red wheat from that region, or the other had greatly deteriorated. Mr. Ira Curtis of Polk county, and Capt. P. L. Huyett of Jefferson county, were the only parties who have given it a thorough trial, and both have sold a large portion of their crops for seed at high prices. The former party took the first premium of $40 for the best crop, yield over 40 bushels per acre, from the State Agricultural Society at the winter meeting in 1863. Capt. Huyett writes as follows, in regard to this and the White Mediterranean, under date of August 12, 1862, having given the Red the name of "College Prolific."

"Accompanying this you will receive a small sack of each variety, White and Red. In 1860 I received about 1½ bushels of the two varieties. In the fall of 1861 I sowed the product of the former year. I have just threshed my second crop, and have nearly 400 bushels of the two varieties. Only about eight acres of the Red did well, as the balance of the piece was too rich, and the grain too thick; about the time it was out of bloom a heavy storm blew about 2 acres of it as flat as it could be laid; the remaining 8 acres produced over 40 bushels per acre. I could not cut it until the 8th and 10th of July, when it should have been harvested about the 4th. The consequence was, I lost considerable in cutting and binding. I do not think it advisable to sow it on very rich soil

My *first* sowing was on the 12th Sept., 1860, on old ground that had been manured with half-rotted straw, put in with a common harrow, and rolled with a large roller just before freezing set in, was harvested 7th July, and produced 43 bushels per acre. My *second* sowing was on the 18th and 19th of September, 1861, on ground that had had but one crop taken off, was put in with a common harrow, and rolled as above for 1860. Sowed about 1¾ bushels per acre, which is too much for rich soil.

I regard the red variety much the best, and it is certainly the most hardy wheat I ever saw. I do not believe that one stock of it has been winter-killed for me. If this variety of wheat is put in deep enough, I have no doubt in the world that it would stand our most severe winters, put in with double shovel plows or cultivators, after which lightly harrow, then before freezing sets in roll it well, packing the ground around the stocks, and thus secure it from exposure to wet and freezing. Rolling wheat immediately after sowing is a great mistake, for, as during the progress of its growing the ground becomes loosened and exposes the roots to wet and freezing.

I have experimented with a great many varieties of fall wheat in the west, at considerable expense, but I have not met with any that will compare with the varieties I here mention. *It is the wheat for this country.* I have received a great many letters in regard to it from Wisconsin, Indiana, Illinois, and this State. I am selling it at $1,50 per bushel. Of the Spring wheat in this vicinity, eight out of ten farmers will not raise a bushel, the chinch-bug having destroyed it. The few who have had out fall wheat succeeded well.

P. S. As you may be at a loss to know how this wheat of mine got its title, I will say, as I received it from your office, at your suggestion it has received the name of "College," and at my own that of "Prolific."

Capt. P. L. Huyett's address is Wooster, Jefferson county, Iowa.

Messrs. I. & S. W. Curtis, of Polk county, present the following in regard to the Red Winter Wheat, the same that was grown by Capt. Huyett:

"In the fall of 1860 we called on Mr. Wilson, Secretary of Farm College, for seed wheat, and were furnished with the so-called Red Mediterranean. We harvested in June of next year a fine specimen, weighing 62 lbs to the bushel. In the fall of 1861 we followed in fifteen acres on wheat and barley stubble. The winter being more favorable, the average yield was 30 bushels per acre, three acres of which was measured and weighed within a fraction of 40 bushels per acre, for which the State Society awarded the premium. The fall of 1862 we followed in wheat stubble very deep, and sowed about the 15th of September. The dry freezing winter, together with the long continued drouth in the Spring, caused the wheat to be thin on the ground, and consequently a light crop, about 20 bushels per acre.

"The soil on which it was grown, is the common black loam prairie, with a clay sub soil. The location a southwestern exposure, with no protection.

"The chinch-bug guerrilla institution, make their depredations too late in the season to do any material damage, as this variety of wheat ripens, if properly managed, the last week in June."

"We would remark on the culture of this wheat, that it has some advantages over other varieties: First—It is an early variety. In the State of Ohio, where the midge or head weavel is destructive, in the later kinds, this would escape, excepting, perhaps, a few late heads. Second—It has proved good with our crops against the chinch-bug. Last season we had a late planting of table corn next to the wheat; the bug destroyed all the corn, and rambled a pace or two in the wheat, but did it no damage. Our Spring wheat, on the other side of the corn, did receive damage. Third—It is a hardy kind to endure the winter; in our experience we have had it on all the different lays of ground, from the high round, following the sides down to the spongy land or ravine, and rising moderately, so that the enclosure is changed or faced about. Our best success has been on the sides when the sub soil retained the moisture."

The following statement is presented in regard to its flouring qualities:

Des Moines City Mills, Jan. 6, 1864.

We have bought Messrs. J. & S. W. Curtis' wheat for the last three years, and pronounce it the best fall wheat we have used, and the wheat weighed 62 lbs. to the bushel, and makes splendid flour.

SHEPARD, PERRIER & BENNETT.

Both the farms upon which the above wheat was produced are on the prairie, some distance from timber.

The *Early May* wheat, of which some ten bushels were distributed from this office, in 1860, there is but one party, A. B. Lyman, Esq., of Polk county, who has given it a persistent, thorough trial, at least he is the only one who reports such a trial to this office.—Last year a premium of $15 was offered by this office for the best specimen of Winter Wheat for general cultivation. In January last, the Committee appointed to examine the wheat and make the award reported as follows:

Des Moines, Jan. 14th, 1864.

Wm. Duane Wilson, Secretary of Iowa Farmers' College:

The undersigned Committee, appointed to award premiums on Wheat, having examined the several samples presented in pursuance of the accompanying circular, unanimously award the premium for the best Winter Wheat to Mr. A. B. Lyman, of Polk county, for a sample called the Early May or May Wheat. This wheat has has had considerable trial, and being quite early in ripening, is worthy of being recommended for general cultivation, or at least a thorough trial.

Respectfully,

J. W. CATTELL,
M. W. ROBINSON, } Committee.
ROBERT SEEVERS,

Accompanying the wheat, Mr. Lyman makes the following statement in regard to it as compared with Spring wheat on same farm. Connected with which are statements in regard to other crops:

MR. A. B. LYMAN'S STATEMENT.

The following statement of the net yield or profits on wheat, rye, oats and corn, per acre, for 1863, furnished by A. B. Lyman, Esq., of Polk county, in centre of State. Mr. Lyman is one of our best farmers, and knows the cost of everything produced upon his farm:

Fall Wheat.—May variety grown on summer fallow, yield 40 bushels per acre, at a cost of 34 cents per bushel, sold for $1 25 per bushel: profits per acre, $27.

Fall Wheat.—Grown on corn stubble, same variety as above, yield 28 bushels per acre, at a cost of 42 cents per bushel, sold at $1.25; profits per acre, $16 25.

Spring Wheat.—Tea variety, yield 13 bushels per acre, of inferior wheat, (being injured by chinch-bug,) at a cost of 47½ cents per bushel, worth 60 cents per bushel; profit per acre, $1.52½.

Rye.—Yield 30 bushels per acre, at cost of 38 cents per bushel; profit per acre, $4.

Oats.—Yield 40 bushels per acre, at a cost of 17 cents per bushel, sold for 25 cents per bushel; profit, $3 20 per acre.

Corn.—Yield 77 bushels per acre, worth 40 cents per bushel, cost husked, 10¼ cents; profit, $21.85.

Corn.—Yield 50 bushels per acre, worth 40 cents per bushel, cost husked, 16 cents; profit, $12.

Corn.—Yield 40 bushels per acre, worth 40 cents per bushel, cost husked, 20 cents; profit, $8.

Corn.—Yield—average—55.66 bushels per acre, worth 40 cents, per bushel, cost husked, 15 and 44 cents; profit, $13.71.

GENERAL WHEAT AND CORN CULTURE.

Notwithstanding the fact that the culture of wheat in our State is not a crop which generally pays the producers as well as either of the other staple crops, it is one, when considered in the aggregate, of great importance to our people, yet its production, beyond a mere supply sufficient for home demand, except in a few favored districts where cheap transportation can be obtained, should have

more consideration than is generally given to it. Those who depend on wheat as the main crop, and those who neglect its cultivation altogether, are perhaps equally out of the way. The extraordinary crops which are common some seasons, and others equally extraordinary, at occasional places, to be found every season, seem to make it plain that the difficulty lies not in the soil nor the climate, but in the generally defective and imperfect manner and method of cultivation.

Requisites to a good yield of corn.—Of all other crops grown by the farmers of Iowa, the production of a fair crop of corn is generally best understood. Still there is no other secret about it but good seed and clean and careful cultivation. The best crops of corn are raised in something like the following manner:

1st. The ground is plowed deeply in the fall, if the previous crop was other than corn.

2d. It is thoroughly harrowed, if the season is dry.

3d. If plowed in the fall mark off shallow in the spring, thereby preventing the weeds which may be covered in the fall from springing up in the hill.

4th. Carefully selected seed is dropped and covered.

5th. It is rolled after planting, to give the seed the best chances for germinating.

6th. It is harrowed just as the corn is coming up, that being the first assault upon the weeds.

7th. It is plowed out one way.

8th. It is plowed out the opposite way.

9th. It is plowed out a second time the first way.

10th. It is plowed out a second time the second way, and the corn, even and completely, to the exclusion of everything, takes full, and we may say magnificent possession of the ground.

A crop with such or similar cultivation, suited to the soil and the season, is harvested in time to be out of reach of any ordinary frosts, yielding from 60 to 75 bushels per acre. The corn crop has been the foundation, and will long continue to be the foundation of three-fourths of all the agricultural prosperity of our State.

How shall a good yield of wheat be secured?—Suppose the same amount of labor expended on the spring and winter wheat crops of Iowa, the result would be a general average for a series of years of about *twenty* bushels per acre instead of twelve bushels. Instead of the shallow plowing in the spring, the sowing of a bushel, more or less, of dirty, shrunken, rusty seed, and the single careless harrowing, or "dragging," as it is more appropriately called, suppose a system of cultivation adopted similar to that required to produce on an average from 60 to 75 bushels of corn to the acre. Then the routine of obtaining a spring wheat crop might be something like the following, and for a winter wheat crop altered to suit circumstances: *First*, we should have a tolerably clean piece of land

—very clean the best—from which the surface water would readily drain; then the routine would be:—

1st. Deep plowing, and if possible, subsoiling in the fall.

2d. A thorough harrowing in the spring, if the ground is not too wet.

3d. Sowing as early as the ground will admit, from one and a half to two bushels of sound, clean seed.

4th. A second harrowing to cover the seed.

5th. Rolling, if the ground is not too wet, to assist the seed to germinate, by affording it all the chances.

6th. A second rolling at the proper time to assist the growing plants to stool, to crush the larvæ of insects, helps to level the surface, and kill and bury starting weeds.

ASSESSED VALUE OF REAL ESTATE AND PERSONAL PROPERTY IN IOWA, FOR THE LAST THIRTEEN YEARS, FROM 1850 TO 1863, INCLUSIVE.

The following table is taken from the printed reports of the Auditor of State, excepting only that for the year 1860, which is from the U. S. Census, which gives the cash value instead of the assessed value of property. Up to and including 1857, regular annual assessments were made; after that year, regular assessments were made every alternate year, 1859 and 1861; the last regular assessment occurred in 1863. The discrepancies existing, especially in the number of acres returned, are principally owing to want of returns from some of the counties, and cannot now be corrected. In regard to the other items, glaring errors are evident in several counties, in carrying out the value of property, most of them probably typographical. The table, however, is as near correct as the records furnish, and will serve as the best approximation, at least, which can be given of the progressive value, and sometimes deteriation in value, of the taxable property of the State. It is the only exhibit of the kind which has ever been given. It is probable that at least one-half of the land assessed is owned by non-residents. The average assessed value of lands is a fraction over four dollars and thirty-three cents per acre, and the present tax on all property for State purposes, is two mills on the assessed value. The taxes for all other purposes, county, school, &c., &c., is about eight mills additional.

Year.	Population.	No. of Acres of Land Assessed	Value of Land with Improvements	Value of Town Lots with Improvements	Value of Personal Prop'y.	Total Valuation
1850	192,204	2,736,064	$16,657,567	$3,367,796	$3,689,275	$23,714,638
1851	204,775	4,656,640	16,945,179	4,453,386	7,065,984	28,464,550
1852	230,888	5,618,207	20,658,180	4,745,604	13,023,592	38,427,376
1853		6,977,192	27,527,106	7,108,002	14,905,196	49,540,304
1854	326,014	9,175,097	40,175,097	6,564,458	25,587,649	72,326,204
1855		12,891,543	61,743,051	13,289,020	31,863,319	106,895,390
1856	519,414	17,328,308	94,509,363	23,224,091	39,260,959	156,994,413
1857		23,256,472	135,855,950	29,443,884	44,744,699	210,044,533
1858	633,547	23,116,127	140,693,903	27,883,280	26,662,553	195,239,736
1859		26,949,871	133,283,903	31,359,165	33,180,282	197,823,350
1860	674,913	24,376,227	123,447,181	30,044,300	30,147,858	183,639,339
1861		27,787,287	119,089,294	24,846,422	33,515,287	177,451,003
1862		27,300,865	121,194,836	24,770,327	29,806,475	175,771,638
1863	702,374	28,336,345	111,036,569	23,613,964	32,463,106	167,113,639

The United States Census places the true value of real and personal property in Iowa for 1860, at $247,338,265, exhibiting a rate of increase, for the previous ten years, of 942-97 per cent. The only State which at all approaches Iowa, is California, whose rate of increase is 837-98. Texas is next, 592-44. Wisconsin's increase is 550-72. Oregon's 471-35—Illinois, 457-93, and Arkansas 450-32. These are the only States exhibiting any remarkable increase, as the increase of the whole Union is put down at 126-45 per cent.

The cash value of farms in Iowa, as per U. S. Census, in 1850, was $16,657,567—in 1860, $118,741,405. In this item Iowa ranks 21st among her sister States.

The value of farming implements and machinery, the U. S. Census gives for Iowa, in 1850, $1,172,869, and in 1860, $5,190,042. In this, Iowa ranks 22d among the States.

IMPROVED AND UNIMPROVED LANDS.

The following data of improved and unimproved lands is obtained from official sources. We have added to the reported improved lands an average of four acres for those occupied by houses, barns, &c. For the large items of unimproved lands reported for 1856 and 1858, we are unable to account. That the precise number of acres unimproved attached to farms might be satisfactorily obtained, this item was embraced in the census tables for 1862. The United States census returns must have been based upon the same requisition as the increased number of acres of improved lands from 1860 to 1862 agrees so nearly to the facts of the increased tilled acreage as ascertained from other sources:

1850, Acres of land improved,........ 860,000, unimproved,.......1,911,382
1856, " " " " ....2,343,958, " 6,515,479
1858, " " " " ....3,469,436, " 7,335,657
1860, " " " " ....4,100,000, " 4,060,253
1862, " " " under cultivation,.4,170,496, unimproved attached to farms, 4,135,613
1862, " under fence,...............4,784,886,

As the whole number of acres in the State, after deducting about

4,000,000 for rivers, creeks, &c., is as near as can be ascertained, 35,000,000 acres, there is of uncultivated lands about 30,000,000 acres, or over one-eighth of the whole amount; there are assessed for taxable purposes, 28,336,345 acres, thus leaving of lands not entered, and not subject to taxation, 6,663,655 acres, about one half of which being taken by or subject to railroad grants. Of the taxable lands it is very probable that not less than 15,000,000 acres are owned by non-residents. Some of these lands are doubtless held, where they are located very eligibly, for speculation, yet the most of them can be obtained at from $2 to $5 per acre, even in the older settled counties, and from five to ten miles from railroads in, or soon to be in operation. There is, perhaps, no State in the Union offering greater facilities for settlement and productive farming, either on a large or small scale, than does the State of Iowa. Even with only a little over one-eighth of her land under cultivation, her annual available products for exportation have averaged not less than $10,000,000 per annum for the past three or four years.

AGRICULTURAL STATISTICS FROM THE STATE CENSUS FOR 1862.

The statistics in the following tables are principally taken from the State census for 1862, attached to which are deductions and comparisons with the productions of other North-western States, as found in the United States census of 1860. They will be found interesting and valuable:

FROM THE STATE CENSUS FOR 1862.

Counties.	Spring Wheat.			Winter Wheat.			Corn.		
	Acres.	Bushels.	Av'ge per Acre.	Acres.	Bushels	Av'ge per Acre.	Acres.	Bushels.	Av'ge per Acre.
Adair	849	8490	10.00	9	120	13.33	2952	98680	33.42
Adams	1186	7842	6.61	4	57	14.00	5295	183088	35.52
Alamakee	33587	271717	8.09	353	6556	18.57	20804	547677	26.32
Appanoose	1537	1950	1.22	840	8518	10.14	48935	2175532	42.41
Audubon	610	4627	7.58	....	....	....	942	34440	36.56
Benton	26456	225029	8.50	63	614	9.74	23601	866978	36.73
Black Hawk	22529	216688	9.61	12	341	28.41	15703	562559	35.81
Boone	3403	29487	8.66	37	518	14.00	12890	491237	38.10
Bremer	13929	161586	11.60	62	1322	21.32	8761	272057	31.05
Buchanan	20508	186122	9.07	33	822	24.90	13195	445989	33.79
Buena Vista	....	....	....	....	....	....	....	....	....
Butler	9862	133746	13.56	1	15	15.00	7045	232369	32.98
Calhoun	231	2467	10.68	....	....	....	396	14834	37.45
Carroll	221	1692	7.65	....	....	....	964	29500	30.60
Cass	2041	17734	8.60	5	48	9.60	4034	162824	40.36
Cedar	58186	200020	3.43	222	3267	14.71	42323	1527466	36.09
Cerro Gordo	2047	26225	12.81	....	....	....	1242	46476	37.42
Cherokee	12	59	4.91	....	....	....	57	1200	21.05
Chickasaw	8099	102294	12.63	¾	7	9.33	5051	189633	37.54
Clarke	4470	20989	4.69	174	2833	16.33	22056	852903	38.66
Clay	....	....	....	....	....	....	....	....	....
Clayton	53821	502182	9.31	1156	18278	15.81	28199	966552	34.27
Clinton	67176	480465	7.15	275	4022	14.62	35439	1156861	32.64
Crawford	449	5148	11.46	....	....	....	1214	42520	35.84
Dallas	6333	51371	8.11	121	2142	17.70	19848	733255	36.94
Davis	597	631	1.05	2554	33659	13.17	49491	1792486	36.21
Decatur	2005	6974	3.47	744	7797	10.48	29151	1042031	35.78
Delaware	32855	297375	9.05	318	5129	16.12	28136	706010	25.09
Des Moines	16313	77755	4.76	5085	78241	15.38	47905	1917731	40.04
Dickinson	46	315	6.84	....	....	....	112	1810	16.16
Dubuque	41830	199390	4.71	559	4043	7.23	34941	1336268	38.24
Emmett	....	....	....	....	....	....	....	....	....
Fayette	27864	277911	9.94	38	861	22.63	16088	629054	39.16
Floyd	8867	136294	15.48	3½	80	22.85	5634	222691	39.49
Franklin	2937	39764	13.53	....	....	....	2567	78931	31.13
Fremont	6281	69254	11.02	38	794	20.89	16225	691790	42.63
Green	936	7131	7.61	8	171	21.25	4666	144865	31.06
Grundy	3953	53833	11.08	⅔	15	22.50	2433	97491	40.06
Guthrie	3282	25478	7.76	3	43	14.33	9217	371698	40.42
Hamilton	1899	17475	9.23	....	....	....	7303	89708	12.28
Hancock	271	3712	13.69	....	....	....	255	11265	44.17
Hardin	9858	131016	13.29	37	785	21.21	10724	448316	41.80
Harrison	4670	46542	9.97	....	....	....	15404	418924	27.19
Henry	13063	56280	4.30	3175	53877	16.96	54578	1425732	26.01
Howard	9833	118533	12.05	11	186	16.90	3672	111511	30.36
Humboldt	226	889	3.93	16	....	....	655	17560	26.80
Ida	....	....	....	....	....	....	....	....	....
Iowa	17194	129444	7.52	227	4834	21.29	23756	747679	31.47
Jackson	42343	101894	2.40	983	7067	7.18	36794	1227011	33.34
Jasper	13584	146124	10.75	289	4077	14.10	35774	1584253	44.28
Jefferson	7262	15749	2.16	5313	71868	13.56	45971	1668501	30.29
Johnson	27856	131496	4.72	575	6120	10.64	42770	1598664	37.37
Jones	35989	165457	4.59	52	164	3.15	34324	1312622	38.53
Kossuth	244	2925	12.00	....	....	....	522	19321	37.01
Keokuk	15019	73245	4.87	1996	29120	14.58	49228	2057470	41.79

FROM THE STATE CENSUS FOR 1862—CONTINUED.

COUNTIES.	SPRING WHEAT.			WINTER WHEAT.			CORN.		
	Acres.	Bushels.	Av'ge per Acre.	Acres.	Bush'ls	Av'ge per Acre.	Acres.	Bushels.	Av'ge per Acre.
Lee	18046	72305	4.30	3490	57661	16.52	60694	2188647	36.06
Linn	34085	146762	4.30	113	1317	11.65	41883	1562202	36.29
Louisa	17242	73430	4.25	2042	34136	16.71	41831	1384398	33.07
Lucas	3493	15487	4 43	493	3942	7.99	21620	884820	40.92
Lyon	......	......	....	....	......	....	......	......	....
Madison	7586	40140	7.52	905	9015	9.96	27731	939545	33.88
Mahaska	14307	86229	5.02	1408	21667	15.38	53040	2085756	39.32
Marion	13141	107989	8.22	1765	24684	13.98	48619	2296277	47.23
Marshall	12722	174260	13.69	490	293	18.96	20250	912977	45 08
Mills	8462	91346	10.79	11	269	24 45	11309	499170	44.13
Mitchell*	7408	96430	13.01	22	495	22.50	3661	130827	35.70
Monona	976	10022	10.20	....	......	....	2546	86270	33.88
Monroe	4603	18155	3.94	1162	13147	11.31	32023	1186674	37.05
Montgomery	1316	10261	7.79	....	......	....	3714	151622	40.82
Muscatine	38676	164914	4.26	250	2271	9.08	36503	1099011	30.10
Osceola	......	......	....	....	......	....	......	......	....
O'Brien	......	......	....	....	......	....	......	......	....
Page	5152	43914	8.52	90	1726	19.17	16485	630789	38.26
Palo Alto	80	951	11.88	....	......	....	245	8389	34.22
Plymouth	363	4028	11.09	....	......	....	169	4565	27.01
Pocahontas	39	497	12.74	....	......	....	252	7095	28.15
Polk	8805	78784	8.94	248	5113	20.61	28044	1348964	48.10
Pottawattamie	5418	61660	11.38	124	272	2.19	7718	296264	38.37
Poweshiek	13390	104232	7.03	17	224	13.17	20317	784829	38.62
Ringgold	2037	9537	4.68	82	1220	14.87	11401	348532	30.57
Sac	181	1549	8 55	....	......	....	315	10213	32.42
Scott	68802	491507	7.14	248	3666	14.78	33629	1386928	41.24
Sioux	......	......	....	....	......	....	......	......	....
Shelby	1065	7666	7.19	....	......	....	2227	88817	39.92
Story	5142	39032	7.59	....	......	....	11782	399724	33.50
Tama	15199	185795	12.25	8	131	16.37	15726	620574	39.46
Taylor	3797	29384	8.63	95	1528	16.10	13067	413923	31.67
Union	1708	9881	5.78	79	1222	15.46	7648	282675	36.96
Van Buren	5942	7478	1.25	7040	115936	16.46	44884	1571723	35.01
Wapello	4812	10394	2.16	3098	43502	13.71	46561	1913137	41.08
Warren	8612	68562	7.96	568	10227	18.00	35970	1306977	36.33
Washington	28430	139373	4.93	1263	19159	15.16	48644	1754848	36.07
Wayne	1922	4617	2.40	319	2283	7.15	26995	959772	35.55
Webster	1936	20537	10.60	3	36	12.00	4701	170590	36.28
Winnebago	137	2033	14.83	....	......	....	107	3735	34.90
Winnesheik	46579	582360	12.50	13	144	11.07	19098	669806	35.07
Woodbury	531	3708	6.87	....	......	....	945	19443	20.57
Worth	1128	15504	13.69	....	......	....	794	29973	37.74
Wright	1109	11155	10.05	....	......	....	1115	37612	33.73
Totals	1098998	8052684	....	50838	742637	14.06	1733503	63883916	35.48

*One township not returned.

WHEAT, CORN AND OATS.

The following table embraces a period of fourteen years, and is made up principally from official sources. The items marked (*) embrace lands under fence—it is not probable that they were all under cultivation:

YEAR.	IMPROVED LAND.	WHEAT.			CORN.			OATS.	
		Acres Sown.	Bushels Harvested.	Av'ge per Acre.	Acres Planted.	Bushels Harvested.	Av'ge per Acre.	Acres Sown.	Bushels Harvest'd
1849	824 682	117,729	1,530,581	13.10	192,373	8,656,799	45.00	47,635	1524,345
1856	2,043,958	388,080	5,469,516	14.10	737,213	31,163,362	42.33	190,922	6127,829
1858	3,199,436	779,909	3,119 239	4.00	986,096	23,366,684	23.69	315,572	1703,760
1859	3,445,394	974,886	8,433,205	8.60	1,109,358	41,116,994	37.00	183,740	5879,653
1860	3,780,253	1,000,000	16,000,000	16.00	1,200,000	55,000,000	45.83	....	....
1861	*4,400,000	1,100,000	13,200,000	12.00	1,500,000	47,250,000	31.50	....	....
1862	*4,784,886	1,149,836	8,795,321	7.66	1,733,503	63,883,916	36.85	336,137	7582.060
1863	*5,000,000	1,200,000	14,592,000	12.16	1,800,000	39,000,000	21.66	3,548	....
....	....	....	....	10.95	....	....	35.48	....	....

The general average of wheat, leaving out the disastrous year of 1858, is a small fraction under 12 bushels per acre.

The average of winter wheat in 1862 was 14.06 bushels per acre—being double that of spring wheat.

WHEAT AND CORN.—For 1850, no document which could be found gives the number of acres occupied by either wheat or corn, but as the United States census gives the number of bushels produced, and taking the information given by parties who raised both that year, the result is given as above.

For 1856 and 1858, we have the State Census for those years, presumed to be as correct as such documents usually are. 1858 was the most disastrous year which the State has ever experienced agriculturally, and the extraordinary short crops of which have influenced the general average of production to a lower figure than the State deserves; but even with this reduction, Iowa ranks above her sister States, in her general average productions for the breadth of land under cultivation.

For the crop of 1859, we have the U. S. census for 1860. In the fall of 1860, I published an estimate of the crops for the years 1859 and 1860, based, principally, for the breadth of land occupied, on the ratio of increase between 1856 and 1858. In that I gave the yield of wheat 7,799,088 bushels, and of corn 44,374,320 bushels. In the former I was a little under, and in the latter a little above the amounts given in the U. S. census, taken the year after, which proves, when taken with the general information I had at the time of the average yield, that my system of computation was near enough for a safe approximation.

In 1860, the breadth of land given as occupied by wheat and corn, had a similar basis as the above; but in addition, I made an extensive personal examination through the most productive wheat sections of the State, embracing at least one half of the State under cultivation, and corresponded extensively with parties on whom I could rely in other sections, which also gave me superior facilities for ascertaining the yield. All this, when taken with the average proportionate occupation of the improved land as given in the assessors' returns, induces me to believe that in this also I have a reliable approximation. There are several very observing men, however, who also traveled a short time after harvest, over extensive portions of the North-eastern section of the State, where I placed the average yield of wheat at twenty bushels per acre, who, judging from that principally, have expressed to me their judgment that I had placed the State average at least four bushels too low. But in the southern portion of the State principally, where the average yield was not over twelve bushels, other parties, whose observation was confined to that section, inform me that I placed the total average yield too high. With all the information obtained since, I have not had any good reason to change my figures.

For 1861 the breadth of land occupied is made on the same basis as for other years. The yield given is the result of extensive correspondence with, and personal inquiry of the most reliable sources. The crop gave great promise until within a short time before harvest, of a much better average of wheat than is given in the table, by at least two bushels per acre, notwithstanding the crop suffered considerably from rust and chinch bug; but as the season for harvesting the wheat was very wet, and much of it injured in the stack, a deduction of about one-seventh is made from the general aggregate.

In 1862, the aggregate of which are from the last State Census, the chinch bug destroyed the wheat in many fields to such an extent in some sections as to give the impression to many that the crop would be almost an entire failure, but it averaged over seven and a half bushels, and the Winter Wheat nearly *double* the general average of Spring Wheat—a significant fact for our farmers. As to corn, the State Census gives but an average of near thirty-seven bushels, when the general impression was that the yield could not be less than than forty-five bushels per acre of a well matured crop.

For 1863 the yield given is based upon a more extended and successful inquiry than any other year, excepting those in which a census was taken, the result being an *increase* for wheat of near five bushels per acre over that of 1862, and a large *decrease* of the corn yield, owing to very unusual early and severe frosts before most of the crop had matured.

Average of yield of wheat and corn in 1862 *in the several sections of the State.* In the *Central* portion of the State, embracing the counties of Polk, Jasper, Dallas, Warren and Story:

Spring Wheat, bushels, 8:26; Winter Wheat, bushels, 17:60; Corn, bushels, 37:45.

In the *North-Eastern* section embracing Fayette, Clayton, Buchanan, Bremer and Winneshiek counties:

Spring Wheat, bushels, 10:48; Winter Wheat, bushels, 19:14; Corn, 34:66.

In the *South-Eastern* section, embracing Jefferson, Henry, Van Buren, Washington and Wapello counties:

Spring Wheat, bushels, 2:96; Winter Wheat, bushels, 15:17: Corn, 34:91.

In the *South-Western* section, embracing Montgomery, Pottawattamie, Mills, Page and Adams counties:

Spring Wheat, bushels, 9:01: Winter Wheat, 14:95; Corn, 39:42.

In two middle *Northern* counties, Mitchell and Howard:

Spring Wheat, bushels, 12:53; Winter Wheat, 19:70; Corn, 33:03.

In two middle *Southern* counties, Wayne and Appanoose:

Spring Wheat, bushels, 1:81; Winter Wheat, 8:64; Corn, 38:98.

The following seventeen counties produced in 1862 more than one-half of the whole wheat yield of the State, as follows:

COUNTIES.	Bushels Spring Wheat.	Average per acre of Sp. Wheat	Bushels Winter Wheat.	Total Wheat.
Winneshiek	582,360	12.50	144	582,504
Clayton	502,182	9.31	18,278	520,460
Scott	491,507	7.14	3,666	495,173
Clinton	480,465	7.15	4,022	484,487
Delaware	297,375	9.05	5,129	302,504
Fayette	277,911	9.94	861	278,772
Alamakee	271,717	8.09	6,556	278,273
Benton	225,029	8.50	614	225,643
Black Hawk	216,688	9.61	341	217,029
Dubuque	199.390	4.71	4,043	203,433
Cedar	200,020	3.43	3,267	203,287
Buchanan	186,122	9.07	822	186,944
Tama	185,795	12.25	131	185,926
Marshall	174,260	13.69	9,293	183,553
Muscatine	164,914	4.26	2,271	167,183
Jones	165,457	4.59	164	165,621
Bremer	161,586	11.60	1,322	162,908
	4,782,778	....	60,924	4,843,702

The general average production is 8.52 bu. per acre, which is a small fraction over the general average of the State, for spring wheat. The above named counties are among the most populous.

WINTER WHEAT.—The following thirteen counties produced more than *three-fourths* of the winter wheat harvested in 1862:

Van Buren	115,936	bushels, averaging		16.46	bushels per acre.
Des Moines	78,241	"	"	15.28	"
Jefferson	71,868	"	"	13.56	"
Lee	57,661	"	"	16.52	"
Henry	53,877	"	"	16.96	"
Wapello	43,502	"	"	13.71	"
Davis	33,659	"	"	13.17	"
Louisa	31,136	"	"	16.71	"
Keokuk	29,120	"	"	14.58	"
Marion	24,684	"	"	13.98	"

Mahaska.................... 21,667 bushels, averaging 15.38 bushels per acre.
Washington................. 19,159..."........"....15.16......."........
Clayton.................... 18,278...."........"....15.81......."........

598,788...."........"....15.87......."........

The average production of spring wheat in the above counties in 1862 was 4.35 bushels per acre, Van Buren county being the lowest and Clayton county the highest average. The whole exhibits a difference in favor of winter wheat of over two-thirds, or as 4.35 is to 15.87. The above named counties are among the most populous, and have the largest average of acreage under cultivation.

CORN.—The following twenty-seven counties produced two-thirds the corn crop of 1862:

COUNTIES.	Bushels.	Average per acre.	COUNTIES.	Bushels.	Average per acre.
Marion	2,296,277	47.23	Cedar	1,527,466	36.09
Mahaska	2,085,756	39.32	Henry	1,425,732	26.01
Appanoose	2,175,532	42.41	Scott	1,386,928	41.24
Lee	2,188,647	36.06	Louisa	1,384,398	33.07
Keokuk	2,057,470	41.79	Polk	1,348,964	48.10
Des Moines	1,917,731	40.04	Dubuque	1,336,268	38.24
Wapello	1,913,137	41.08	Jones	1,312,622	38.53
Davis	1,792,486	36.21	Warren	1,306,977	36.33
Washington	1,754,848	36.07	Jackson	1,227,011	33.34
Jefferson	1,668,501	36.29	Monroe	1,186,674	37.05
Johnson	1,598,664	37.37	Clinton	1,156,861	32.64
Jasper	1,584,253	44.28	Muscatine	1,099,011	30.10
Van Buren	1,571,723	35.01	Decatur	1,042,031	35.78
Linn	1,562,202	36.29			
Total, and general average				42,908,170	35.40

The population of the above named counties embraces three-fifths of the whole population.

FROM STATE CENSUS FOR 1862.

COUNTIES.	OATS.		RYE.		BARLEY.		FLAX SEED AND OIL.			
	Acres.	Bushels.	Acres.	Bush.	Acres.	Bush.	Acrs	Bush. of Seeds.	Pounds flax Lint.	Gals. Lins'd Oil.
Adair	220	4,499	1	10	7	115	2	7	50	......
Adams	115	1,842	18	218	14	155	12	25	645	......
Alamakee	6 620	188,441	77	1287	264	5,562	9	20	287	....
Appanoose	6,955	150,761	2,151	20756	4	28	289	1,767	3855	113
Audubon	129	3,397	......	......	7	242	....	......	......	......
Benton	5,073	134,922	80	1091	91	1,701	16	80	1070	......
Black Ha'k	4,106	116,287	187	3204	152	3,028	29	574	9224	48
Boone	1,415	30,292	297	3265	1	15	21	105	1189	......
Bremer	3,384	111,905	137	2439	356	7,996	6	47	909	......
Buchanan	4,594	132,062	39	555	246	4,646	12	111	1630	9
B'na Vista	......	......	......	......	......	......	....	......	......	......
Butler	2,623	74,513	273	4276	92	1,539	3	17	182	4
Calhoun	203	5,103	......	......	......	......	....	......	......	......
Carroll	61	1,507	2	30	......	......	½	3	......	......

FROM STATE CENSUS FOR 1862—CONTINUED.

COUNTIES.	OATS.		RYE.		BARLEY.		FLAX SEED AND OIL.			
	Acres.	Bushels.	Acres.	Bush'ls	Acres.	Bush'ls.	Acres	Bush's of Seed.	Pounds Flax Lint	Gal's. Lins'd Oil.
Cass	238	5,61	17	221	5	80	⅛	5	4	.....
Cedar	11,806	183,465	188	1954	532	10,611	514	2,890	1255	......
Cer. Gordo	893	26,442	2	47	214	2,648	¼	5	50	......
Cherokee	18	317	2	28	......	....	....	......	......	......
Chickasaw	4,256	86,196	69	1282	354	5,430	4	62	90	......
Clarke	2,388	51,213	474	4041	......	....	52	221	2841	23
Clay	......	....	......	......	......	....	....	......	......	......
Clayton	13,385	385,379	63	963	403	6,343	12	43	529	.....
Clinton	12,844	352,772	59	896	855	18,248	49	226	265	......
Crawford	162	3,877	31	254	45	888	....	......	......	......
Dallas	2,533	47,962	241	4419	18	360	70	380	1120	2,000
Davis	9,694	111,174	3,224	33336	9	119	208	629	6606	120
Decatur	1,804	27,548	861	11060	3½	140	51	216	1415	......
Delaware	10,760	249,907	147	2060	230	5,104	13	75	929	......
Des Moines	8,344	152,158	831	11098	201	2,296	307	2,065	1030	20,000
Dickinson	11	275	......	......	4	55	....	......	......	......
Dubuque	18,689	384,741	330	4827	733	16,098	30	117	402	2
Emmett	......	....	......	......	......	....	....	......	......	......
Fayette	7,372	235,788	74	1506	404	8,243	23	29	987	......
Floyd	2,665	89,791	87	1390	282	6,121	14	122	325	.....
Franklin	1,004	26,391	152	2344	63	1,411	8	70	28	......
Fremont	838	21,858	259	5445	88	1,617	3	18	100	......
Greene	428	8,940	8	130	2	20	21	84	95	......
Grundy	2,187	23.904	91	1811	79	1,432	1	18	140	......
Guthrie	1,535	23,079	10	140	......	....	5	22	305	......
Hamilton	843	21,086	47	629	33	550	20	7	81	......
Hancock	199	6,170	2	33	52	1,474	....	......	......	......
Hardin	3,270	71,681	245	3618	47	948	14	73	814	......
Harrison	638	13,353	133	2653	60	879	2	12	62	......
Henry	6,358	156,350	1,113	16548	130	1,871	1068	7201	63910	......
Howard	2,376	78,074	27	482	463	10,648	2	16	299	......
Humboldt	203	4,654	......	......	38	648	3	1	......	......
Ida	......	....	......	......	......	....	....	......	......	......
Iowa	4,208	72,230	158	2283	92	2,202	12	49	1284	......
Jackson	13,475	360,733	294	3137	224	3,842	131	765	1249	2
Jasper	4,326	100,428	174	2454	64	804	36	138	1379	13
Jefferson	6,823	122,496	1,786	23979	60	890	267	1,511	5765	40
Johnson	8,280	160,607	337	9839	83	1,593	850	6,033	684	10
Jones	9,699	219,491	109	1538	121	1,953	9	58	1082	......
Kossuth	339	9,554	......	......	14	238	....	......	......	......
Keokuk	7,847	129,696	931	9947	92	895	68	364	2743	40
Lee	8,111	167,723	3,943	54864	222	2,704	65	203	965	......
Linn	8,643	169,073	378	4217	112	1,839	160	167	1396	......
Louisa	5,092	117.675	1,729	20741	5	66	397	2,282	662	......
Lucas	2,758	49,299	552	7523	2	40	24	141	2426	......
Lyon	......	....	......	......	......	....	....	......	......	......
Madison	2,493	50,643	284	3614	16	87	40	164	2017	......
Mahaska	5,048	99,411	483	5955	58	753	83	540	3590	......
Marion	4,629	105,891	374	5344	57	844	43	204	2544	......
Marshall	4,515	102,058	397	6352	39	605	28	174	305	2
Mills	535	13,666	347	3146	38	799	3	28	20	......
Mitchell	2,147	74,474	101	1776	972	19,947	....	1	......	......
Monona	213	5,047	106	3471	......	....	1	4	......	......
Monroe	3,955	79,061	1,103	15431	28	390	68	351	3731	200

FROM STATE CENSUS FOR 1862—CONTINUED.

COUNTIES.	OATS.		RYE.		BARLEY.		FLAX SEED AND OIL.			
	Acres.	Bushels.	Acres.	Bush'ls	Acres.	Bushels	Acr's	Bush. of Seed.	Pounds Flax Lint.	Gal's. Lins'd Oil.
M'tgomery	144	3,612	4	34	2	40	5	20	143	......
Muscatine.	8,247	124,146	2,216	26889	608	11,602	379	1,953	459	100
Osceola ...	......	....	......	......	......	....	....	......	......	......
O'Brien ...	......	....	......	......	......	....	....	......	......	......
Page	1,459	34,679	239	4154	121	1,360	9	40	505	1
Palo Alto .	30	470	......	......	......	....	....	......	......	......
Plymouth .	57	9,667	1	14	7	180	...	......	......	......
Pocahont's	11	311	......	......	3	75	....	......	......	......
Polk	3,284	80,052	239	4426	120	2,081	16	71	1360	......
Pottawat'e	417	9,559	74	1615	57	1,484	1	3	200	......
Poweshe'k	2,262	54,106	57	851	85	1,687	9	114	732	......
Ringgold..	921	17,152	137	1644	6	149	31	66	709	......
Sac	129	2,508	30	480	......	....	....	......	......	......
Scott	8,335	222,540	126	2177	7352	165,626	117	609	40	......
Sioux.....	......	....	......	......	......	....	....	......	......	......
Shelby	128	2,976	......	......	22	296	$\frac{1}{8}$	1	......	......
Story	1,649	34,444	151	2350	40	645	30	188	651	......
Tama	2,846	80,436	209	3039	79	1,614	8	31	743	......
Taylor....	752	16,356	91	1281	......	12	13	71	694	......
Union	506	10,558	95	1087	2	34	7	33	304	......
Van Buren	8,387	123,381	3,244	39956	21	194	175	1,051	3512	......
Wapello ..	5,245	87,278	1,855	21330	7	104	62	379	2664	......
Warren ...	3,927	85,313	232	3792	8	199	59	225	3556	......
Wash'gton	6,860	143,951	609	8728	29	509	39	265	2976	......
Wayne ...	2,578	45,929	974	11113	......	....	69	408	1971	.....
Webster ..	933	23,551	79	1120	21	401	5	22	371	4
Win'ebago	48	1,411	......	......	13	215	$\frac{1}{4}$	$\frac{1}{4}$	14	....
Win'eshiek	9,693	335,458	204	2715	1048	23,432	91	63	510	7
Woodbury	412	7,225	20	300	6	100	$\frac{1}{2}$	$1\frac{1}{2}$	......	......
Worth	317	9,757	35	605	124	2,852	$1\frac{1}{2}$	$9\frac{3}{4}$	140	......
Wright ...	335	8,987	6	49	22	376	1	6	100	......
Totals ..	336,137	7,582,060	36,963	474675	18,679	385,067	6317	36,168	158918	22,728

OATS, RYE AND BARLEY.

The State Census for 1856 and 1858 contain no returns in regard to rye and barley.

YEAR.	OATS.		RYE.		BARLEY.	
	Acres.	Bushels	Acres.	Bushels.	Acres.	Bushels.
1849	56,828	1,524,345	1,000	19,916	1,000	25,093
1856	190,922	6,127,329	....	....	....	....
1858	315,572	1,703,760	....	....	....	....
1859	226,140	5,879,653	9,000	176,055	18,164	454,116
1862	336,137	7,582,060	36,963	474,675	18,679	385,067

OATS.—The influences which operate upon spring wheat generally affect the oat crop. For the first time, however, it suffered

quite as extensively by rust in 1858 as the wheat crop of that year. The general average yield, omitting the crop of 1858, is between 26 and 27 bushels per acre.

RYE is cultivated principally as a forage crop, and used to a very small extent for breadstuffs. Its great value for the former use is beginning to be appreciated by our farmers, as is evidenced from the above figures.

BARLEY is cultivated by some for feeding to stock, but principally for brewing purposes; yet the production cannot be sufficient to supply the home demand. The counties which produced more than two-thirds of the whole crop in 1862, were Scott, Winnesheik, Mitchell, Clinton, Dubuque, Howard and Cedar, of which Scott produced about three-fifths, or nearly one-half of the whôle crop of the State.

FLAX, FLAX SEED AND LINSEED OIL.

Of these items there were produced in the United States, in

1849 ...Pounds of flax.....7,709,126 Bushels of seed..........562,307
1859........"....."........3,778,843 ...."....."..............611,780

Of which Iowa produced, in

1849.....Pounds of flax..... 62,660 Bushels of seed 1,959
1859........"....."......... 28,888 ...."...."....... 6,130
1862........"....."..........158,918 ...."...."................36,168
and 22,768 gallons of oil.

And Illinois produced, in

1849.....Pounds of flax.....160,063 Bushels of seed...........10,787
1859........"....." .... 32,636 ...."...."................11,202

And Wisconsin produced, in

1849.....Pounds of flax......68,393 Bushels of seed............1,191
1859..... "....."..........21,644 ...."....."...............4,256

The importations to the United States of flax, flax seed and articles manufactured of flax, is in value about 16,000,000 dollars annually.

The above statistics, which are all taken from official sources, will enable any one to see the position of Iowa in comparison with two of her Western sisters and with the production in the whole Union. Since 1859 Iowa has increased her production in flax about six fold. If the balance of the Union has done as well, and they should all continue to increase in the same ratio, it will not be many years before we can be independent of foreign countries. If capitalists would turn their capital into good paying channels, Iowa presents inducements for the investment of a few hundred thousand dollars in the erection of linseed oil mills and machinery for preparing the fibre for market. [See an article in this report in regard to preparation of flax.]

FROM STATE CENSUS FOR 1862.

COUNTIES.	SHEEP AND WOOL. No. sheep on hand Jan. 1863.	No. sheep at Sh'ring in 1862.	Pounds of wool sh'rd in 1862.	Number of work Oxen.	Number of milch Cows.	BUTTER AND CHEESE. Pounds of But'r made in 1862.	Pounds of cheese made 1862
Adair	884	742	2562	113	543	20562	12645
Adams	2331	1911	6093	231	831	28988	1664
Alamakee ..	3433	2370	7780	2309	4,484	243376	22128
Appanoose .	20478	13172	43875	1102	4,918	201183	4746
Audubon ...	395	286	1039	35	248	9921	814
Benton	4784	3647	14118	1014	4,455	247194	23027
Black Hawk	3847	1797	11375	1094	3,440	186791	17647
Boone	5038	3273	12013	300	1,920	88902	7375
Bremer.....	5199	3262	12267	671	2,751	149040	12812
Buchanan ..	4187	2893	10826	1034	3,570	179249	14919
Buena Vista.	......	......	......	......	......	......	......
Butler......	1561	901	2990	437	1,955	100779	11174
Calhoun .. .	110	60	238	20	80	3380	248
Carroll	123	30	204	21	139	5885	273
Cass	1178	1399	5951	91	752	26206	8578
Cedar.......	5508	3232	12457	611	7,302	353278	34300
Cerro Gordo	728	591	2029	131	504	25004	3696
Cherokee ..	......	......	......	12	7	170	......
Chickasaw ..	3890	2690	9257	710	2182	135361	14480
Clarke	8248	6041	25202	426	2572	133420	2365
Clay	......	......	......	......	......	......	......
Clayton	6008	4375	16342	2530	7,808	356884	79964
Clinton	5011	2467	9105	1316	9,357	464512	31165
Crawford ..	218	51	203	85	376	8992	1060
Dallas	5954	4466	15966	268	2,368	127548	5107
Davis	29790	19851	72313	1078	6,653	239398	6538
Decatur	16090	10218	33199	933	3,589	152710	8026
Delaware ...	8109	4210	15286	1863	6,357	342573	59458
Des Moines.	12549	7718	27477	403	6,598	308459	10544
Dickinson ..	3	1	4	24	93	2290	350
Dubuque ...	6791	4871	17744	1723	10,335	465465	27404
Emmett . ..	......	......	......	......	......	......	......
Fayette.....	10797	6707	26577	1403	5,208	323092	34971
Floyd	3197	1990	7655	490	1,814	102247	14871
Franklin ...	1412	1221	4608	210	688	35429	6300
Fremont ...	5327	3886	12226	317	2,469	20012	4850
Greene	2057	1288	4761	73	598	23383	26
Grundy	946	496	1936	209	629	26703	6782
Guthrie	3375	2160	9471	186	1,362	67664	2816
Hamilton ..	1877	1269	904	211	830	35760	1150
Hancock ...	172	102	331	52	109	6035	200
Hardin	3873	2487	9583	454	2,308	114127	6513
Harrison ...	2192	1101	4321	568	1,863	73890	9920
Henry	13211	9909	32525	842	6,617	305783	24438
Howard ...	858	654	2322	981	1,797	111991	11406
Humboldt ..	83	588	2131	176	206	6226	1120
Ida	......	......	......	......	......	......	......
Iowa	4311	3270	10815	1110	3,608	159546	14925
Jackson	7886	5543	21051	1627	8,827	432387	29515
Jasper......	11855	7339	28022	583	4,383	206196	13646
Jefferson ...	19830	13511	62897	559	6,668	284717	13045
Johnson ...	11816	7433	28290	1076	7,043	323286	16823
Jones	6395	4852	16948	1172	6,506	306731	41892
Kossuth	19	3	16	66	152	6975	485

FROM STATE CENSUS FOR 1862—CONTINUED.

COUNTIES.	SHEEP AND WOOL. No. sheep on hand Jan. 1863.	No. sheep at shar'ing in 1862.	Pounds of wool shr'd in 1862.	Number of work oxen.	Number of milch cows.	BUTTER AND CHEESE. Pounds of But'r made in 1862.	Pounds of cheese made 1862
Keokuk	18834	13,385	46091	2573	5786	224,797	13532
Lee	17348	12,245	46497	1135	9421	361,892	102229
Linn	12011	9,385	27679	936	7081	391,300	25722
Louisa	6641	6,159	18465	403	5329	205,451	7485
Lucas	7493	6,871	18367	531	2402	183,885	5947
Lyon	......	......	......	......	......	......	......
Madison ...	12959	7,561	26947	777	3369	156,216	9504
Mahaska ...	32489	19,804	71667	868	5958	250,892	12681
Marion	21471	14,746	47277	871	6598	244,955	17297
Marshall....	6192	4,543	17283	305	2887	164,320	990[illegible]
Mills	2978	2,629	7649	604	2315	83,609	3763
Mitchell	943	569	2019	618	1627	77,133	10452
Monona	445	229	1036	211	664	22,568	2370
Monroe.....	17116	11,134	39525	744	4003	183,963	9044
Montgomery	1490	945	3595	123	584	22,678	2330
Muscatine ..	3453	1,828	5941	880	6886	323,635	24760
Osceola.....	......	......	......	......	......	......	......
O'Brien	......	......	......	......	......	......	......
Page	6482	5,527	24609	474	2138	83,671	8418
Palo Alto...	......	......	......	38	155	3,000	......
Plymouth ..	......	......	......	28	54	1,574	200
Pocahontas .	......	......	......	28	84	3,460	100
Polk	12551	7,507	27065	421	4666	198,915	12964
Pottawat'ie .	6432	5,080	2359	569	1976	67,653	7339
Powesheik..	11171	8,352	29583	468	2817	128,321	11962
Ringgold ...	4304	3,069	8800	294	1342	48,705	1820
Sac	163	40	219	49	177	4,670	370
Scott.......	6079	2,627	10108	897	8096	514,565	46630
Sioux	......	......	......	......	......	......	......
Shelby	872	471	2040	92	432	16,571	477
Story.......	3712	2,354	7097	278	2058	102,693	3780
Tama	3370	2,208	8731	707	3236	155,325	11563
Taylor	5070	3,157	12471	382	1616	69,724	1734
Union	2471	1,685	5910	202	935	42,710	2727
Van Buren .	23358	16,643	54866	485	7259	291,090	17437
Wappello...	23005	15,596	53048	859	6465	278,348	9597
Warren.....	14698	10,185	33082	458	4647	202,423	10549
Washington	17257	11,913	42811	804	6802	310,722	21948
Wayne	11297	7,669	27462	853	2616	114,919	5398
Webster	2659	1,571	5308	293	1332	58,814	2682
Winnebago .	55	39	140	56	103	5,560	100
Winnesheik.	8391	5,412	16446	2803	6664	367,339	30268
Woodbury ..	22	29	127	161	468	15,729	3470
Worth	434	311	908	223	560	32,325	2245
Wright	283	206	676	46	445	19,680	9210
Totals	599,938	406,408	1,429,209	56,596	292,025	13,675,500	902,701

SHEEP AND WOOL.

Official sources give the following data for the number of sheep and quantity of wool shorn in Iowa for several years. Where the items are estimated they are marked with a star *:

In 1850, number of sheep,.....	149,960,	pounds of wool shorn,......	373,898
" 1856, " " "	....*144,000,	" " " "	517,441
" 1858, " " "	....*164,400,	" " " "	627,860
" 1860, " " "	 258,228,	" " " "	653,036
" 1863, " " "	 406,408,	" " " "	1,429,209

The number of sheep reported as above, for 1863, were the number on hand at shearing time in 1862. The whole number of sheep at the time of taking the census in January 1863, was 599,938.

Estimating the 599,938 head on hand January, 1863, as sheared in the following spring, averaging 3½ pounds per fleece, the product is of wool, in pounds, 2,099,783.

Estimating the increase on the number in 1863 at but one-fourth, and the importation for 1863 at only 150,000 head, the number for shearing in 1864 will be 900,000, and the yield of wool 3,150,000 pounds.

By the same ratio of increase and adding nothing for importations, the number of sheep to be sheared in 1865 will be 1,125,000 and the yield of wool 3,937,500 pounds.

The average clip per head of sheep in the Western States in 1860 as per census of that year, was 2.67 pounds. The average per head in Iowa for that year was 2.52 pounds. The average per head in Iowa for 1862 was 3.51 pounds, or 0.84 of a pound beyond the mean of the United States for 1860.

It is now a settled fact, beyond all contradiction, that wool growing in Iowa can be conducted as successfully as in any of the States of the Union, and is a good paying business at 25 cents a pound. The price of wool for the past three years in this State has averaged from 60 to 70 cents per pound, with very little prospect of much decrease on this for some years to come.

BUTTER AND CHEESE.

From official returns we have for the years named as follows:

1849 By the United States Census	2,171,188 lbs.
1856 " " State Census.....	6,099,208 "
1858 " " State Census...........................	9,432,219 "
1859 " " United State Census......................	11,526,002 "
1862 " " State Census	13,675,500 "

The average production per inhabitant was eleven pounds in 1849 and 1856, fourteen pounds in 1858, seventeen pounds in 1859, and 19½ pounds in 1862—an increase of over eight pounds per inhabitant within six years. The average product per cow in 1849, was 47.50 pounds, in 1859 61.32 pounds, and in 1862, 46.79 pounds. The great difference or falling off in the average yield of butter per cow, may be accounted for in two or three ways, the principle of which is the rearing of more stock in proportion—and the mode of enumeration by the United States Census may have excluded all the cows not used for dairy purposes, while our census for 1862 included all of that sex whether used for breeding or milking purposes. Taking the average of these three years we have 51.87 pounds as the average for each cow. In Illinois the average production per cow, as per United States Census for 1860 was 53.20 pounds; New York 91.75 pounds; Pennsylvania 72.25, and Ohio 72.51. The product per inhabitant in each of these States as per United States census of 1860 was as follows: New York 26.56 pounds; Ohio 21.58 pounds; Pennsylvania 20.18 pounds; Illinois 16.56 pounds. We lead our elder sister Illinois, as per census of 1860, 8.12 pounds per cow, and exceed her, within a small fraction of three pounds per inhabitant. Notwithstanding the apparent short supply of butter for the State, large quantities were exported. In consequence of the extensive and severe drouth, which seriously affected the grass crop, the yield of butter for 1863, is probably one fifth less than in 1862.

CHEESE.—The product of cheese, in Iowa, has been as follows, taken from official sources :

1849—By the U. S Census,........................	209,840 pounds.
1856— " " State "	732,323 "
1858— " " " "	778,788 "
1859— " " U. S. Census, ...	901,220 "
1862— " " State Census,......................	902,701 "

From 1849 to 1862 there has not been that increase of production which there has been in butter. The average per inhabitant for the four first named years was 1.41 pounds—the average per inhabitant for 1862 was 1.28—general average for the five years, 1.34 pounds. The average product per cow in 1849, as per United States Census of 1860, was 4.24 pounds—in 1862 it was only 3.09 pounds. The same reason for this falling off may be given as for the falling off of the butter product.

It may not be unprofitable to make comparisons *here* with the productions of other States in these items, taking the last United States census year, 1860, and that they may be as severe as possible, we take two of the best Western and two of the best Eastern States. Illinois produced an average per cow, of butter and cheese, 56.18 pounds—Wisconsin 76 pounds: New York 134.87 pounds—Ohio 106.64 pounds. Iowa's production of these two items, the same year, was 65.91 pounds, leading Illinois nearly ten pounds per head, and equal within a fraction to the average of Illinois and Wisconsin—but Ohio's average is one-third more than Iowa, and New York more than double. How is it that the New York and Ohio cows produce in butter and cheese more than double the quantity which the Iowa cow does? Here is food for reflection for the farmers of Iowa. Is it because the farmers there are more intelligent and thrifty? This, in part, may be one of the reasons. Is it because our breeds of cows are not as good as those of New York? Doubtless this, in part, also. Is it that we have no market for what we make? This certainly cannot be one of the reasons, for we do not make as much as we do or would consume.

All these operate more or less, but there are other reasons which our farmers and others in and out of the State should know, and which has and is doing more to injure the dairy reputation of our State than anything else. Nine-tenths of all the butter and cheese produced in this State is made without suitable rooms, cellars, houses, presses, and the other appliances so essential to secure a good merchantable article. What is made is principally by the hands of the women, the men giving them little or no assistance, as they do in Ohio and New York. With these much needed implements and assistance, the women of Iowa, with a little more experience, can present an exhibit that would be more flattering in this department, and in quality, such as to astonish those doubters who attribute our failures principally to the prairie grasses. We have yet to learn that our native grasses are not equal, to say the least of them, to the best cultivated grasses in the Eastern States for making the best butter and cheese that can be produced in any State. When our farmers have the wisdom and ability to provide themselves with the necessary tools for dairy work, our State will prove this claim to the world.

The only well appointed cheese dairy we know of in this State is on the farm of Asa C. Bowen, of Bowen's Prairie, in Jones county. There may be others, but we have not seen them. Mr. Bowen has a prairie farm of only 120 acres, and depends entirely upon the cultivated grasses, and clears annually, on cheese alone, something over $1000. He has a market at home for a considerable portion of his product, but Dubuque is his principal market. He recently disposed of a few tons in Chicago, and the quality was declared equal to the product of the best dairies in Ohio. Notwithstanding all this, a party in the same county, who depends almost entirely on the prairies for food for his cows, took the first premium at our last State Fair for his cheese in competition with the product of Bowen's dairy. If the committee awarded correctly, it tells well for the prairie grasses.

For the benefit of the general reader we have prepared the following table of the product of butter and cheese, with the averages of productions per cow, in eighteen counties of the State, where more than one-half of the whole production of the State is made:

COUNTIES.	Number of Cows.	Pounds of Butter manufactur'd	Pounds of Cheese manufactur'd	Av'ge No. lbs Butter and Cheese ℔ cow	R'nk in No. lbs. butter	R'nk in No. lbs. Cheese.
Scott	8,096	514,565	46,630	69.31	1st	3d
Fayette	5,208	323,092	34,971	68.75	13th	5th
Delaware	6,357	342,573	59,458	63.39	10th	2d
Winnesheik	6,664	367,339	30,263	59.68	6th	8th
Linn	7,081	391,300	25,722	58.89	5th	12th
Jones	6,506	306,731	41,892	53.58	16th	4th
Cedar	7,302	353,278	34,300	53.07	9th	6th
Clinton	9,357	464,512	31,165	52.97	3d	7th
Jackson	8,827	432,387	29,515	52.32	4th	10th
Muscatine	6,886	323,635	24,760	50.59	11th	13th
Henry	6,617	305,783	24,438	49.90	17th	14th

COUNTIES.	Number of Cows.	Pounds of Butter Man'factured	Pounds of Cheese Man'factured	Av'ge No. lbs of Butter Man'factured	R'nk in No. lbs Butter.	R'nk in No. lbs Cheese
Clayton	7,808	356,884	29,964	49.54	8th	9th
Lee	9,421	361,892	102,229	49.26	7th	1st
Washington	6,802	310,722	21,948	48.90	14th	15th
Des Moines	6,598	308,459	10,544	48.35	15th	18th
Johnson	7,043	323,286	16,823	48.29	12th	17th
Dubuque	10,335	465,465	27,404	47.68	2d	11th
Van Buren	7,259	291,090	17,437	42.50	18th	16th
Totals	134.167	6,542,993	519,463	53.72	......	......

SORGHUM, GRAPES, BEES AND HONEY.

COUNTIES.	SORGO.			TAME GRAPES AND WINE.		BEE HIVES, HONEY, AND BEESWAX.		
	No. of Acres.	Gallons of Molasses.	Po'nds of Sugar.	Founds of Grapes.	Gallons of Wine.	Numb'r of Hives.	Pounds of Honey.	Pounds of B'swax
Adair	89	7,104	6	......	......	142	2,105	78
Adams	144	11,880	69	25	......	161	3,618	54
Alamakee	80	5,137	......	1,885	1	738	12,388	632
Appanoose	1248	77,908	156	1,327	74	1,944	35,478	992
Audubon	322	929	.....	20	......	61	1,320	59
Benton	645	56,891	51	1,266	65	875	11,521	278
Black Hawk	476	39,874	26	742	8	675	12,084	130
Boone	376	33,560	2,803	578	5	520	9,927	394
Bremer	337	20,476	360	520	1	372	4,437	301
Buchanan	557	48,637	24	1,217	18	649	8,333	343
Buena Vista	......	....	......	......	......	......	....	.....
Butler	286	21,952	401	200	8	143	1,666	42
Calhoun	16	925	......	......	......	......	....	.....
Carroll	26	1,951	......	......	......	13	320	.....
Cass	142	13,752	105	220	......	90	1,496	57
Cedar	650	70,305	464	1,418	25	2,314	20,553	284
Cerro Gordo	64	4,538	......	400	5	26	430	9
Cherokee	2½	72	......	......	......	......	....	.....
Chickasaw	169	9,115	1	273	......	325	2,804	76
Clarke	516	39,635	646	2,776	40	694	15,346	286
Clay	......	....	......	......	......	......	....	.....
Clayton	283	21,495	433	1,160	26	2,227	15,601	445
Clinton	58	48,943	489	2,269	9	1,489	16,394	581
Crawford	18	971	......	200	......	192	2,323	90
Dallas	529	50,391	395	1,640	25	527	8,072	530
Davis	1085	75,095	344	3,348	67	2,983	51,913	2,322
Decatur	637	49,785	162	4,045	131	1,876	26,849	1,246
Delaware	638	52,770	80	1,116	9	926	9,719	458
Des Moines	644	60,238	40	72,185	4,457	2,661	22,260	957
Dickinson	1½	70	......	......	......	......	....	.....
Dubuque	363	17,296	223	30,070	1,224	1,319	11,989	1,008
Emmett	......	....	......	......	......	......	....	.....
Fayette	391	22,735	......	858	12	838	10,112	182
Floyd	139	9,151	50	48	......	411	4,697	182
Franklin	106	7,011	15	......	......	19	482	20
Fremont	253	23,209	18	110	......	777	8,344	272
Greene	132	10,405	......	78	......	102	1,158	82
Grundy	84	6,417	200	......	......	10	....	.....
Guthrie	296	25,220	......	191	......	254	4,322	100
Hamilton	181	12,328	100	20	......	130	2,004	46
Hancock	15	1,019	......	......	......	1	100	.....
Hardin	456	36,875	......	305	......	432	4,453	102
Harrison	286	26,037	74	307	6	985	19,808	853

SORGHUM, GRAPES, BEES AND HONEY—CONTINUED.

COUNTIES.	SORGO.			TAME GRAPES AND WINE.		BEE HIVES, HONEY AND BEESWAX.		
	No. of Acres.	Gallons of Molasses.	Pounds of Sugar.	Pounds of Grapes.	Gallons of Wine.	Numb'r of Hives.	Pounds of Honey	Pounds of B'swax
Henry	856	80,533	40	6,247	63	2,683	22,887	841
Howard	31	3,627	......	......	......	81	1,412	36
Humboldt	48	4,012	......	......	......	4	90	5
Ida	......	......	......	......	......	......	......	......
Iowa	445	42,355	86	867	22	860	11,960	437
Jackson	493	42,510	202	6,961	249	2,448	32,946	1,089
Jasper	821	74,942	85	1,800	15	1,401	20,911	714
Jefferson	982	86,794	266	17,111	388	2,808	22,228	1,243
Johnson	640	69,071	399	9,409	468	2,548	29,315	877
Jones	784	69,412	99	1,119	9	1,280	14,000	397
Kossuth	31	1,797	......	......	......	6	70	4
Keokuk	1086	80,101	5,151	978	37	1,962	23,812	1,222
Lee	1039	91,915	207	39,677	2,882	3,113	30,204	1,387
Linn	1140	118,850	565	1,688	767	3,104	31,258	1,270
Louisa	572	52,020	61	1,558	39	1,984	20,570	864
Lucas	510	41,572	295	884	17	1,296	22,876	592
Lyon	......	......	......	......	......	......	......	......
Madison	676	57,698	115	589	1	1,256	18,963	835
Mahaska	920	90,579	1,743	5,260	43	2,328	25,280	1,082
Marion	880	85,591	123	3,111	223	3,069	32,735	1,338
Marshall	513	51,864	63	1,648	20	599	9,888	355
Mills	504	34,764	179	150	......	750	7,423	340
Mitchell	69	4,585	......	35	......	136	2,251	27
Monona	75	6,171	......	119	......	346	5,057	389
Monroe	625	51 585	155	3,707	30	1,765	26,498	946
Montgomery	97	8,444	45	30	......	175	3,130	95
Muscatine	563	49,659	390	10,855	297	1,517	17,724	674
Osceola	......	......	......	......	......	......	......	......
O'Brien	......	......	......	......	......	......	......	......
Page	424	31,991	67	779	......	621	7,657	350
Palo Alto	5	170	......	......	......	......	......	......
Plymouth	4	57	......	......	......	......	......	......
Pocahontas	8	755	......	......	......	......	......	......
Polk	1263	65,572	247	8,437	83	1,456	21,550	925
Pottawattamie	182	16,465	95	100	......	410	4,681	227
Poweshiek	405	31,356	628	953	......	639	12,841	498
Ringgold	280	16,770	21	20	......	429	5,286	169
Sac	24	1,663	......	......	......	6	50	......
Scott	288	24,002	28	9,309	58	1,538	15,490	548
Sioux	......	......	......	......	......	......	......	......
Shelby	67	5,062	282	......	......	152	1,747	107
Story	502	35,401	50	654	35	428	7,230	241
Tama	486	42,942	153	802	1	355	4,872	107
Taylor	371	21,685	65	45	......	563	7,854	299
Union	207	14,782	5	......	......	267	5,773	194
Van Buren	943	77,381	632	12,483	890	3,391	29,766	1,719
Wapello	744	67,773	36	3,535	46	2,549	34,797	1,487
Warren	833	78,879	79	1,804	......	1,946	29,261	1,313
Washington	843	78,818	810	9,480	272	2,449	25,977	1,216
Wayne	707	46,149	220	298	35	1,462	24,157	344
Webster	190	14,465	......	374	......	350	5,070	265
Winnebago	6	172	......	......	......	......	......	......
Winnesheik	103	8,504	45	992	......	595	8,563	253
Woodbury	26	1,957	2	60	......	86	1,879	108
Worth	45	3,170	......	......	......	2	......	......
Wright	48	3,902	......	......	......	17	270	2
Totals	36,667	3,012,396	21,469	294,755	13,163	84,731	1,052,685	40,763

SORGO AND IMPHEE.

The first official report we have of the growth of Sorgo and Imphee, and its manufacture into Syrup and Sugar in the State is obtained from the State Census for 1858. Its introduction into the State was through the U. S. Patent Office in the year 1856 and 1857, and proved at once a success, so much so that in 1862 it occupied over 36,000 acres. It probably reached that amount in 1861. From the State Censuses and that of the United States, we have as follows:

In 1858 there were........ 5,606 acres, and product was..... 416,774 galls.
" 1859 " " ....26,846 " " " " .....1,993,474 "
" 1862 " " ....36,667 " " " " .....3,012,396 "
The product of Sugar in 1862 was............................ 21,469 lbs.

The average product per acre of Sorgo and Imphee Syrup is near seventy-eight and a half gallons. It is unfortunate that the information was not obtained of the number of acres worked up to produce the amount of Syrup reported, as it is a notorious fact that on an average at least one-third of the cane grown was not made into syrup, owing to want of facilities for grinding and evaporating. It is also an admitted fact that the crude machinery used did not extract more than two-thirds of the juice. Deducting the one-third as not worked up would make an average of 117 gallons per acre as the most probable yield of Syrup. If appropriate machinery had been used one hundred and fifty gallons per acre would have been produced.

The yield of 1863 was cut off at least three-fourths by frost, and most of the syrup made was of a quality inferior to that of the previous year, the cane being injured by frost.

The aggregate yield in Iowa in 1859 was nearly *one-third* of the whole product of the United States, and exceeding either of the States of Illinois, Indiana, Ohio, and Missouri, more than 1,000,000 gallons. These four States produced not quite one half of the whole crop, and the highest, Indiana, was 827,777 gallons; the lowest, Ohio, 707,416 gallons. In all the subsequent years Iowa has continued in the lead, so far as we can learn from reliable sources. Nothwithstanding the very general failure last year, our farmers generally are not discouraged, and we should not be surprised that we would have a yield exceeding that of any previous year, if well ripened and pure seed can be obtained. In quality the syrup from Sorgo made in Iowa is generally of superior quality, and goes largely towards supplying the wants of a large portion of our farmers' families. The crop is as sure as that of corn. The average cost of cultivation and working into syrup does not exceed 20 cts. a gallon, when properly prepared for making it.

There has nothing been developed within the past year which can be relied upon in regard to any great improvement in the manufacture of syrup or sugar from Sorgho or Imphee, beyond what was known when the season for working commenced. Extensive and well prepared arrangements were made to test several modes, but the early and severe frosts blasted every effort. If we have a favorable season this year we will, doubtless, have some reliable developments, although it is to be feared that general success will not be so certain owing to the great scarcity of pure and well-ripened seed.

A discovery of a process of making sugar from any sorghum molasses of fair quality, has been made by a gentleman in Nebraska Territory. His process was recently exhibited before a company of gentlemen in the Patent Office, Washington City, where it is said he made sugar from sorghum syrup, on exhibition there, in a few minutes. The quality in appearance and taste is equal to the best Southern Coffee Sugar. The discoverer says the cost is very trifling, for foreign material, being only ten cents for thirty pounds of Sugar. The quantity made from a gallon is not less than five pounds, leaving the remainder a clear amber color and of sufficient body for table use. The process is so simple that any farmer can make his own sugar. A patent has been applied for, and will, doubtless, be granted. Another year will develop this wonderful discovery, and if successful it will create an entire revolution in sugar making of all kinds.

GRAPES AND WINES.

In 1849 Iowa is returned by U. S. Census to have produced 420 gallons of wine, and in 1859, 3,706 gallons. These embraced, it is very probable, every thing made called wine, and much of it from the wild grape. The State Census of 1863 gives the number of gallons made from the cultivated grape only, in 1862, as 13,163 gallons, of which there was made in Des Moines county, 4,457; in Lee county, 2,882; and in Dubuque county 1,224 gallons, being near two-thirds of the whole. From the number and extent of vineyards which only came into bearing during the past year, the yield of 1863 must have been considerably more than in 1862.

Of grapes, the number of pounds reported as grown in 1862, was 294,755, which was doubtless doubled in 1863.

Grape culture in Iowa is an experiment no longer, there being many of the best varieties which withstand our low temperature in winter very well, especially the *Concord*, for which it is claimed no winter protection is necessary. There is scarcely a section of our State where the wild grape fails to produce abundantly every year, and especially is this the case on the sandy bottoms of the Missouri and Des Moines Rivers, from which some very nice wines have been made for domestic use and of sufficient purity to be a valuable auxiliary to the wines used as medicine.

HONEY AND BEESWAX, AND HIVES OF BEES.

The productions of Honey and Beeswax were as follows:

In 1849—Honey and Beeswax, total, ... 321,711 pounds.
" 1859—Honey, 919,750—Beeswax 32,802 total, ... 952,552 "
" 1862—Honey, 1,052,685—Beeswax, 40,762, total, ...1,093,447 "
" 1862—No. of Hives of Bees, ... 84,731

This interesting branch of Husbandry is progressing with the increase of population, and presents a much higher average per inhabitant than Illinois or Wisconsin in 1859. For Iowa in that year it was 1.41 pounds, Illinois, 81-100ths of a pound, and Wisconsin only 29-100th of a pound. Iowa ranks over Illinois 60-100ths of a pound, over Wisconsin 1.12 pound, and over both together 41-100ths of a pound. This is a very flattering exhibit for Iowa over her Western sister States. Whether our climate and food is more favorable, or that our farmers give Bee-culture more attention, we are not advised, probably both have their influence. We merely state the facts, leaving for others to give the causes. It is a branch so remunerative that we are astonished greater attention is not given to it. The average product per hive in Iowa, in 1862, was nearly 13 pounds.

FROM THE STATE CENSUS FOR 1862.

COUNTIES.	POTATOES.			TAME GRASSES.				HUNGARIAN GRASS.		WILD GRASS.
	Acres Irish Potat	Bushels Irish Potatoes	Bush. Sweet Pots	Acres for past'r.	Acres for mow'g.	Tons of tame hay.	Bush. of Seed	Acres.	Tons hay.	Tons hay cut.
Adair	42	3425	3	.....	47	105	.....	59	12	2444
Adams	80	6274	10	3	180	345	43	97	213	3159
Alamakee	1257	96385	.....	450	4670	6060	547	476	923	7197
Appanoose	439	25678	1211	694	1723	5829	702	3125	5389	2930
Audubon	21	2473	.....	10	25	7	.....	18	37	1351
Benton	437	27947	83	373	1441	2319	443	127	282	16598
Black Hawk	520	33563	25	440	1068	1698	1265	372	692	13525
Boone	49	8922	166	75	261	528	64	102	175	5965
Bremer	360	26035	.....	273	856	1431	144	269	440	11399
Buchanan	611	38617	45	369	1406	2485	432	214	290	14650
Buena Vista	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Butler	238	20214	24	82	288	475	148	243	348	8561
Calhoun	12	1890	.....	.....	7	24	.....	.....	.....	513
Carroll	15	1574	.....	3	.....	5	.....	.....	.....	708
Cass	77	8960	30	4	27	61	1	92	280	3828
Cedar	578	37403	421	3153	9791	13831	3312	360	635	12695
Cerro Gordo	72	9071	.....	20	174	241	53	6	14	3503
Cherokee	5	632	.....	.....	.....	.....	.....	.....	.....	74
Chickasaw	339	37836	.....	144	932	1483	608	12	31	13124
Clarke	220	17656	294	101	308	519	320	1297	3158	3907
Clay	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clayton	1187	106318	.....	2213	7034	12012	538	287	601	15076
Clinton	1060	60982	332	2007	6682	9780	2292	1425	2115	24913
Crawford	21	3873	.....	1	1¼	2	3	8	26	1556
Dallas	450	17968	436	79	301	678	71	269	666	6242
Davis	449	32769	1393	1962	4724	5452	746	3874	6123	988
Decatur	347	30545	351	341	1162	1947	267	1870	3674	4554
Delaware	783	58030	234	1522	4682	6736	851	499	1061	20407
Des Moines	793	57027	2372	5846	11278	15609	871	89	179	1242
Dickinson	14	1215	.....	.....	.....	.....	.....	.....	.....	353
Dubuque	2354	136267	80	1933	11800	16972	850	368	523	15633

FROM THE STATE CENSUS FOR 1862—CONTINUED.

COUNTIES.	POTATOES.			TAME GRASSES.				HUNGARIAN GRASS.		WILD GRASS.
	Acres Irish Pota.	Bushels Irish Potatoes	Bush. Sweet Pota.	Acres for past'r	Acres for mow'g	Tons of tame hay.	Bush. of Seed.	Acres.	Tons hay.	Tons hay cut.
Emmett	....	....	....	....	....	....	....	....	....	....
Fayette	659	61960	....	1191	3615	4745	1084	173	468	17907
Floyd	291	40568	3	121	827	1027	132	74	150	8820
Franklin	104	9290	....	49	49	70	24	13	35	4298
Fremont	136	9800	....	78	37	61	43	261	588	4205
Green	47	4337	....	8	98	129	20	12	19	2380
Grundy	77	4715	....	23	277	257	80	17	51	3643
Guthrie	153	16063	20	31	93	187	71	122	282	5566
Hamilton	97	8804	....	70	177	230	7	....	....	4913
Hancock	22	3610	....	....	2	1	....	....	....	982
Hardin	385	19446	....	162	599	783	50	79	198	9570
Harrison	189	19916	6	....	¼	1	8	121	255	9958
Henry	482	38962	2551	3165	10191	13250	3256	167	315	1298
Howard	337	29916	....	118	398	574	69	21	56	9550
Humboldt	42	4798	....	5	26	40	23	....	....	1817
Ida	....	....	....	....	....	....	....	....	....	....
Iowa	507	27306	58	323	1633	2894	420	71	152	15974
Jackson	1177	73005	25	2607	12134	16037	997	614	1175	6400
Jasper	430	30426	306	159	904	1622	128	340	783	11897
Jefferson	500	38727	2435	3187	11799	14783	6886	291	614	540
Johnson	662	47110	138	1405	6213	10899	2374	429	754	16446
Jones	943	48194	119	1282	6863	10236	1127	587	1262	16414
Kossuth	33	4580	....	5	....	24	....	....	....	1856
Keokuk	1246	21520	2142	1084	5088	6896	682	637	1225	7846
Lee	1266	80562	3085	8463	15583	18262	4810	313	489	1517
Linn	991	40753	748	2221	9288	18037	1482	226	505	23151
Louisa	370	26244	752	2408	5808	8136	681	170	269	5454
Lucas	193	18620	392	218	533	907	313	2013	4568	3182
Lyon	....	....	....	....	....	....	....	....	....	....
Madison	341	22617	152	294	914	1309	200	354	937	6451
Mahaska	544	47655	2392	1035	5390	8151	676	707	1222	8825
Marion	563	38503	1702	621	3459	5306	254	840	1762	5592
Marshall	278	20441	89	262	923	1419	525	158	395	11129
Mills	200	17177	10	19	30	225	49	275	604	8099
Mitchell	247	27040	....	85	216	359	77	178	442	7809
Monona	64	5565	....	20	¼	1	1	....	....	3650
Monroe	389	21733	434	908	1920	2929	2714	2773	5239	2551
Montgomery	50	4924	....	8	41	135	17	30	53	1221
Muscatine	1063	59670	3261	2411	6365	11345	1748	454	801	9352
Osceola	....	....	....	....	....	....	....	....	....	....
O'Brien	....	....	....	....	....	....	....	....	....	....
Page	196	18290	260	123	273	353	95	296	375	5554
Palo Alto	42	5320	....	....	....	210	....	....	....	1055
Plymouth	10	820	....	....	....	....	....	....	....	423
Pocahontas	27	2960	....	....	....	....	....	....	....	625
Polk	810	36060	680	302	657	1802	393	484	1069	11282
Pottawattamie	217	17184	91	48	29	106	59	95	307	12436
Poweshiek	259	17100	77	281	1112	1591	172	240	593	10919
Ringgold	253	10375	1	20	194	155	62	386	667	4725
Sac	24	2725	....	2	....	2	....	....	....	948
Scott	1610	85144	1233	5764	6419	10616	672	348	825	13819
Sioux	....	....	....	....	....	....	....	....	....	....
Shelby	46	4931	....	3	7	7	....	11	23	2005
Story	199	12322	50	29	378	617	269	47	113	9997
Tama	353	22461	19	217	1108	1744	514	165	385	13038

FROM THE STATE CENSUS FOR 1862—CONTINUED.

COUNTIES.	POTATOES.			TAME GRASSES.				HUNGARIAN GRASS.		WILD GRASS.
	Acres Irish Pota.	Bushels Irish Potatoes	Bush. Sweet Pota.	Acres for past'r	Acres for mow'g.	Tons of tame hay.	Bush. of Seed.	Acres.	Tons hay.	Tons hay cut.
Taylor	119	9352	268	116	263	407	155	439	1072	3999
Union	96	7777	20	53	175	278	22	306	790	2795
Van Buren	520	40004	2517	3211	11751	13400	3493	737	1148	903
Wapello	431	27251	1516	1544	5353	8546	664	1514	2467	1357
Warren	337	29283	470	536	1475	2409	251	699	2138	7784
Washington	513	30490	1676	2301	7851	11729	978	384	657	6486
Wayne	260	19013	165	65	853	858	378	1863	4113	3387
Webster	166	14819	....	26	112	224	37	....	....	8581
Winnebago	26	2715	....	....	....	....	....	....	....	840
Winnesheik	950	86552	120	760	3774	4876	1347	318	594	22870
Woodbury	41	4945	....	16	10	183	8	....	....	2781
Worth	75	11335	....	9	19	2	....	....	....	3903
Wright	47	5590	5	5	13	36	4	....	....	3550
Totals	35535	2362918	37498	70565	224187	328042	55173	36410	71091	633420

IRISH POTATOES.

The yield of potatoes for 1862 was a fraction over 66 bushels per acre, or about 15 bushels less than the general average of 1849–56–58–and 59. This gave an average of three bushels to each person in the State. The product of 1863 could not have averaged more than two bushels to each person, the drouth having affected the crop very seriously. The official returns for the following years are given:

United States Census, 1849—acres, ..———, ... yield, 276,120 bushels.
State Census, 1856—..........".....18,124, ...".. 2,014,388 ..."...
..".....".. 1858—.........".....34,031, ...".. 1,497,204 ..."...
United States Census, 1859—..".....———......".. 2,700,515 ..."...
State Census, 1862—..........".....35,535 ......".. 2,262,918 ..."...

SWEET POTATOES.

The crop of sweet potatoes for 1862 was but 37,498 bushels, being 13,440 less than that of 1859. It is hardly probable that the crop of 1863 exceeded that of 1862, as our farmers generally think it requires too much labor for the returns, and the unfavorable season had considerable influence upon it. Notwithstanding all these, the crop would doubtless have been doubled if plants could have been had in season and in sufficient quantity. On soils suited to their nature they are grown of large size, and of excellent quality and flavor in this State. The Nansemond variety is recommended as the best.

HAY, STRAW AND CORN FODDER.

The product of all kinds of hay for 1862, is 1,033,553 tons, of which 400,133 tons were from the cultivated grasses, being a fraction over a ton and a half per acre. The number of stock of all kinds returned in the beginning of 1863, was 1,184,976, and of sheep 599,938 head. As this amount of hay was not sufficient to winter all this stock, we must see where the necessary quantity of rough feed was obtained. Say but one half of the corn stalks were secured from 1,733,503 acres grown, and one-half of the straw from 1,522,936 acres of wheat, oats and rye, estimating only one ton to the acre to be saved in good condition, would, together be fully equal to the whole hay product and one fourth more, making a gross amount of food of this character equal to 2,324,594 tons. Estimating only 1½ tons for each head, would leave 547,130 tons for the 599,938 head of sheep. As each 100 head of sheep require twenty tons of prairie hay to winter them, there would be left over for consumption in 1863, about 450,000 tons, or about an average of four tons to each farmer.

For 1863: As the hay crop of 1863 was cut off by drouth at least one-third, it will doubtless require all of the balance of 1862 to make the hay and fodder crop of 1863 equal to that of 1862. With about the same proportion of animals to feed, or even a few more, owing to a more careful husbanding of the straw and corn fodder, notwithstanding the shortness of the corn crop, our stock will come through the winter, by judicious management, in good condition, and in all probability in many localities where the number of stock is not in proportion to the amount of food grown, with considerable over, equal in the aggregate to that of 1862. As prairie hay can be cut and stacked at a cost of not over from $1 to $1.50 per ton, it is a little singular that more is not saved; and it is more singular that one-half of the excellent fodder produced from corn stalks, is permitted to go to waste, or if gathered it is generally in a condition to lose half of its value. Is it not time that our farmers learn to save as well as produce?

GRASS SEEDS.

The following are the products for the years named, taken from official sources:

1849—By United States Census,	2,438	bushels.
1856—By State Census,	20,815	"
1858— " " "	48,363	"
1859— " United States Census,	70,996	"
1862— " State Census,	55,173	"

Why it is that the product of 1862 should be 15,000 bushels less than that of 1859, is more than we can account for, when, in all probability, the number of acres in tame grasses has considerably increased. There must be an error somewhere, as there is reported 224,187 acres for mowing, or the farmers have been very negligent in securing seed.

FROM THE STATE CENSUS FOR 1862.

Counties.	Fruit Trees.		Timber and Hedging.		Hops.	Tobac'o	Mineral.	
	Number Bearing	Number not Bearing	Acres timber planted	Rods hedging growing	Pounds raised	Pounds raised	Amount of coal raised	Other minerals value.
Adair	162	3390	26	....	11	638	....	....
Adams	29	4669	54	768	4	1640	2200	....
Alamakee	1473	22797	1	198	529	2602	....	....
Appanoose	6043	34312	3¼	913	297	25065	18793	50
Audubon	....	904	....	....	8	74	....	....
Benton	669	26727	295	2311	325	4417	....	....
Black Hawk	1547	18848	96	1444	177	1582	....	....
Boone	794	6880	3	10	466	8056	11310	....
Bremer	151	7714	32	1138	105	2636	....	75
Buchanan	442	19942	72	1593	370	1843	1	33
Buena Vista	....	....	....	....	....	....	....	....
Butler	98	5024	51	864	450	8388	....	....
Calhoun	....	492	....	....	....	52	....	....
Carroll	40	530	2¼	20	....	40	....	....
Cass	....	2616	12	525	22	1400	....	....
Cedar	10886	57798	282½	13055	522	2543	....	....
Cerro Gordo	20	3136	2½	....	9	65	....	....
Cherokee	....	....	....	....	....	....	....	....
Chickasaw	267	3636	10	22	188	1765	....	....
Clarke	812	25147	25	1829	72	10957	....	....
Clay	....	....	....	....	....	....	....	....
Clayton	2798	38333	10	59	466	2177	....	8694
Clinton	4623	46782	208	11808	310	3495	....	....
Crawford	....	690	1½	....	62	10	....	....
Dallas	1138	19134	885	161	341	5754	170	....
Davis	13466	40290	27½	4906	141	25599	10472	67
Decatur	2792	38634	156½	678	59	13057	....	....
Delaware	2728	28875	83	1391	302	1892	....	151
Des Moines	75094	66164	12	15159	887	12414	....	126
Dickinson	....	....	....	....	....	....	....	....
Dubuque	41323	40386	5	707	770	1780	....	74176
Emmett	....	....	....	....	....	....	....	....
Fayette	411	16693	164	80	306	1852	....	....
Floyd	108	17153	28	385	462	1578	....	....
Franklin	1	1170	26	255	15	422	....	....
Fremont	1783	17363	15	2068	....	1522	....	....
Greene	....	2051	6½	40	42	1461	....	....
Grundy	1	1842	107	295	....	192	....	....
Guthrie	187	9671	42	989	110	5507	3210	....
Hamilton	59	1559	5	2	....	743	850	....
Hancock	1	472	2	40	....	14	....	....
Hardin	757	13342	262	1010	86	3222	9300	....
Harrison	101	4424	28	200	16954	1623	....	....
Henry	47968	68365	58	18244	1682	17755	100	52
Howard	32	2568	9¼	178	27	461	....	....
Humboldt	....	414	39¼	61	3	114	....	....
Ida	....	....	....	....	....	....	....	....
Iowa	1079	17562	68	1275	280	7763	....	....
Jackson	10001	42343	7	1016	1452	3337	....	770
Jasper	2968	33915	103	2457	275	13202	44936	....
Jefferson	30188	52928	100	11884	1828	24507	118498	164
Johnson	8729	59579	400	5277	853	6047	246	67
Jones	3167	26236	280	2227	570	4447	....	....
Kossuth	....	75	2	....	....	324	....	18
Keokuk	9557	40177	736	9028	344	16539	8888	141

FROM THE STATE CENSUS FOR 1862.

Counties	Fruit Trees.		Timber and Hedging.		Hops.	Tobac'o	Mineral.	
	Number Bearing	Number not bearing	Acres timber planted	Rods hedging growing	Pounds raised	Pounds raised	Amount of coal raised	Other minerals value
Lee	57771	76017	13	46111	1191	28517	5464	200
Linn	12932	28346	65	2143	452	5157	430	......
Louisa	19242	39484	120	16055	649	6419	40	7
Lucas	994	16132	59	2194	181	11619	18060	......
Lyon	......	......	......	......	......	......	......	......
Madison	2781	23248	43	781	406	10780	661	......
Mahaska	13060	41928	84	5796	290	16490	66234	230
Marion	7294	31474	12	2534	208	39141	28709	1103
Marshall	1053	22137	207	2120	155	3434	1	......
Mills	1347	25467	330	844	5	3577	......	......
Mitchell	707	4047	3	80	250	719	......	......
Monona	44	3248	15	......	......	131	......	......
Monroe	7447	25090	14	4560	268	12731	52971	......
Montgomery	21	2280	41¾	158	28	2070	......	......
Muscatine	17710	45386	255	22158	488	3924	6400	......
Osceola	......	......	......	......	......	......	......	......
O'Brien	......	......	......	......	......	......	......	......
Page	691	24951	62½	2348	54	6871	......	......
Palo Alto	......	......	......	......	......	......	......	......
Plymouth	......	54	......	......	......	......	......	400
Pocahontas	......	32	......	......	3	......	......	......
Polk	5717	36760	76	920	216	8068	35468	......
Pottawattamie	209	5047	13	85	4	560	......	......
Poweshiek	1441	29606	133	958	129	7977	......	......
Ringgold	267	9379	30¾	791	41	3877	......	......
Sac	......	230	1	......	2	100	......	......
Scott	18964	80192	478	30950	659	8265	5049	289
Sioux	......	......	......	......	......	......	......	......
Shelby	......	2969	2¾	......	......	......	......	848
Story	289	7326	34	1465	67	4817	......	100
Tama	252	25777	97	777	161	2852	28	......
Taylor	321	10488	51	2290	8	4346	100	......
Union	53	7901	9¼	140	12	1578	......	......
Van Buren	36093	54790	350	15884	648	18066	81265	......
Wapello	17321	33619	166	8949	661	17089	327674	25
Warren	4012	33805	81	2040	154	16273	43419	54
Washington	16393	56182	252¼	15921	968	9740	......	......
Wayne	1299	15735	40	891	839	5271	......	......
Webster	54	3371	1½	100	98	3493	220	40
Winnebago	......	699	......	......	......	10	......	......
Winnesheik	650	15146	377	117	263	1114	......	......
Woodbury	......	42	......	......	......	......	......	......
Worth	25	815	......	......	......	......	......	......
Wright	25	699	3	......	6	45	......	......
Totals	503,943	1,833,651	8,360	306,728	41,738	517,194	901,858	$87,650

NOTE.—The returns of the Census does not give the information necessary for ascertaining whether the *coal* raised was tons or bushels. It is very probable that the returns indicate *tons*.

ORCHARD PRODUCTS.

The value of the orchard products in the State, taken from official sources, was, in 1849, $8,434—in 1858, $118,306—in 1859, $131,234. For 1862, the value of orchard products is not given, but as the number of trees bearing fruit was 503,943, it is safe to estimate that the average product was not less than one dollar per tree, making the very pleasant total of $503,943, being an increase of $372,709 within three years. Considering the general attention which has been given to fruit growing within that period, this showing cannot be considered too extravagant, as this attention produced more care and better cultivation of the trees. The general success which has been attained for several years past in raising fruit in this State has established the fact that Iowa can be made a great fruit producing State. There is not a State in the Union, or perhaps any portion of the world, that can produce an apple of greater perfection, in every way, than has been grown in Iowa. This claim has been proven in many instances, and is admitted by intelligent, unprejudiced fruit growers everywhere. *Our* people are convinced of this fact and show it by their acts, as they had, besides the bearing fruit trees in 1863, 1,833,651 in the orchard not bearing. With those that may reasonably be expected to have borne fruit in 1862, and the increased product of the older trees, the orchard crop of 1863 must have been worth not less than $750,000. For 1864, if we have as favorable a season, the orchard products may reasonably be estimated at $1,000,000. It will not be very long before Iowa will have enough for home consumption, and some for exportation. The value of Iowa's orchard products in 1859, was more than either Wisconsin, Texas, Rhode Island, Minnesota, Louisiana, Kansas, Florida, Delaware, and Arkansas, and more than one-fourth the gross value in those States.

TIMBER AND HEDGING.

For the first time in the history of our State we have, by the last State census, the number of acres devoted to the growth of artificial timber, and the number of rods of hedging now in use. The former doubtless embraces all that has been planted in the State and now matured and maturing:

Number of acres planted for timber................	8,360
" rods of hedging........................	306,728

The greater portion of the timber very probably is the locust and cotton wood, next black walnut, all of which grow very rapidly in our State. Considerable attention has been given for a few years past to setting out timber lots in our prairie counties, and it will be a matter of considerable interest hereafter to note the progress of this important feature in our productions.

Of *hedging* the same may be said. The very general failure some years past to make a good living hedge of the osage orange deterred many from growing it—but its nature and culture is now better understood, hence we may safely suppose that our hedging is principally composed of the osage orange. The hawthorn also has been considerably used and has proved quite successful. It will not be many years before we will see a mile of hedging for every rod now standing.

HOPS.

The production of hops, which in 1849 was 8,242 pounds, decreased to 1,797 pounds in 1859, and arose to 41,738 pounds in 1862. The increased use of malt liquors in the State during the past three or four years has doubtless encouraged the growth of hops, Iowa having 39 such establishments in 1859, which made in that year 35,588 barrels of malt liquors, valued at $221,495. Almost every county in the State raises hops from 100 to about 1000 pounds. Harrison, however, runs far above the rest, having produced near 17,000 pounds, in 1862. The whole crop in the Union in 1859 was 11,009,833 lbs., of which New York produced 9,635,542 pounds. The precarious character of this crop will generally deter our farmers from raising any more than may be necessary for home consumption. As a garden product, or to a limited extent in the field, it may be considered one of the best paying and most useful. In making the elements for a light loaf of bread it should always be preferred, where health is considered an object, to that of saleratus.

TOBACCO.

In looking over the United States census for 1859, we were surprised to find that Iowa had produced in that year 312,919 pounds, which was more than California, Delaware, Kansas, Louisiana, Maine, Rhode Island, Texas, Vermont, Minnesota and Wisconsin, all together, raised in that year. But Connecticut raised 20 times as much as Iowa. If so, from the evidences presented, we can and will beat her in Iowa, if people will use tobacco at present prices. To prove this, in 1862, our census gives us as the product in that year 517,194 pounds, and if the season had been as favorable as usual, and our farmers had had sufficient experience in its cultivation, the yield for 1863 would have been not less than 2,000,000 pounds, and we would not be surprised to learn that the product was at least one-half of this amount. There was a sufficient quantity of seed sent from this office last spring to have produced more than 2,000,000 lbs. The reports in regard to success, &c., will be found in another part of this report. None are discouraged, but profiting by the past year's experience, and with an ordinary favorable year, as many persons at least will put out crops again, and some more extensively than last year, we will have a large, perhaps *very* large production to report for 1864. It will be a good paying crop for several years to come.

FROM THE STATE CENSUS FOR 1862.

Counties.	Horses, of all Ages.		Asses & Mules, of all ages		Cattle, of all Ages.		Hogs, of all Ages.	
	Number.	Value.	Numb'r	Value.	Number	Value.	Number.	Value.
Adair....	511	$21,020	6	$340	1,703	$16,702	2,729	$3,758
Adams....	755	29,683	41	2,010	2,798	24,947	5,995	6,722
Alamakee.	3292	145,314	33	3,165	13,309	106,281	20,650	46,074
Appanoose	6482	257,195	141	6,210	16,522	125,776	44,386	59,919
Audubon .	198	10,554	1	30	849	8,450	1,024	1,632
Benton ...	4158	188,075	128	6,465	12,929	112,036	23,292	33,763
Black Ha'k	3132	125,198	84	4,630	9,606	82,045	11 729	16,022
Boone.....	1766	74,868	190	5,735	6,414	48,427	12 568	13,056
Bremer ...	2344	129,124	27	1,795	8,540	73,992	8,824	15,508
Buchanan.	3018	129,498	26	1,815	10,491	80,47[illegible]	12,002	18,505
B'na Vista	......	......	......	......	......	......	......	......
Butler	2499	79,457	17	1,278	5,935	53,910	6,771	11,983
Calhoun ..	100	4,715	......	......	233	2,029	294	726
Carroll....	105	4,285	2	80	416	3,897	509	732
Cass	674	30,281	16	875	2,451	20,702	2,937	3,705
Cedar.....	7756	324,313	182	10,332	22,081	161,170	44,959	79,833
Cer. Gordo	437	18,608	8	525	1,505	13,170	947	1,503
Cherokee .	......	......	......	......	38	425	25	45
Chickasaw	1482	76,639	20	1,060	7,773	69,650	5,407	8,120
Clarke . ..	2495	111,626	25	4,882	8,486	87,006	22,125	26,183
Clay......	......	......	......	......	......	......	......	......
Clayton ...	7273	316,827	188	10,248	20,035	218,350	33,689	55,596
Clinton ...	7971	394,389	160	10,356	26,391	223,366	34,136	62,311
Crawford .	206	13,185	......	......	962	8,381	1,400	2,186
Dallas	2523	97,773	104	4,875	7,954	69,911	15,545	30,476
Davis.....	5959	288,565	727	25,182	21,081	174,097	52,957	78,432
Decatur...	3543	126,047	113	4,740	12,224	103,056	36,005	40,472
Delaware .	5038	231,685	100	7,358	18,386	169,740	25,875	62,424
Des Moines	6979	296,932	428	25,437	20,205	173,765	43,247	143,686
Dickinson.	36	2,270	......	......	267	3,805	100	374
Dubuque..	7750	286,698	1200	9,036	28,043	202,967	41,565	51,443
Emmett...	......	......	......	......	......	......	......	......
Fayette ...	4052	194,314	137	3,692	15,685	145,731	18,221	28,962
Floyd.....	1700	100,834	27	2,190	5,585	61,392	5,597	10,348
Franklin ..	607	27,134	23	955	2,296	22,780	2,785	7,135
Fremont ..	1929	84,231	85	6,255	7,407	73,243	21,586	18,546
Greene....	569	22,873	19	1,135	1,929	14,528	5,148	5,812
Grundy ...	540	25,650	22	1,550	2,062	20,436	1,903	3,750
Guthrie ...	1452	55,462	55	2,400	4,751	38,714	8,508	11,615
Hamilton .	724	23,011	6	365	3,310	18,978	2,338	3,626
Hancock ..	88	4,945	2	200	366	3,899	108	2890
Hardin ...	2316	108,272	56	3,335	6,752	56,170	9,600	17,959
Harrison ..	1360	66,450	54	3,060	6,819	62,542	14,414	16,404
Henry	6471	266,221	206	11,479	20,585	171,151	42,919	73,081
Howard ..	1202	77,082	15	1,410	5,496	66,961	3,988	12,832
Humboldt.	131	5,050	......	......	832	7,870	316	432
Ida	......	......	......	......	......	......	......	......
Iowa	3039	128,753	101	5,640	11,920	92,373	21,781	29,180
Jackson...	7457	324,172	152	8,760	25,161	216,709	40,567	58,398
Jasper	4553	198,257	228	11,571	13,919	121,638	48,774	89,306
Jefferson ..	6322	280,184	289	15,717	20,966	167,341	48,950	73,027
Johnson ..	6453	244,423	219	11,939	21,328	187,429	39,961	60,226
Jones.....	6017	235,972	121	5,386	19,969	164,562	37,769	60,208
Kossuth ..	172	7,290	......	......	957	7,447	227	577
Keokuk...	8839	218,656	308	13,243	18,354	188,258	46,676	65,153

FROM THE STATE CENSUS FOR 1862—CONTINUED.

COUNTIES.	HORSES OF ALL AGES.		ASSES & MULES OF ALL AGES.		CATTLE, OF ALL AGES.		HOGS, OF ALL AGES.	
	Number.	Value.	Numb'r	Value.	Number	Value.	Number.	Value.
Lee	8280	337,228	500	23,785	25,487	193,837	47,641	104,349
Linn	7471	284,540	398	12,864	24,288	173,260	50,489	91,550
Louisa	4946	210,239	194	10,149	17,842	160,718	37,910	62,453
Lucas	2358	94,550	146	7,554	8,432	68,065	22,967	28,547
Lyon	....	....	....	....	....	....	....	....
Madison ..	3353	127,688	140	9,027	10,349	80,535	26,403	29,629
Mahaska ..	6380	266,113	301	17,338	20,084	187,781	56,710	79,366
Marion ...	9688	249,936	470	20,691	22,010	177,588	57,379	63,049
Marshall ..	3350	143,570	193	3,494	8,636	95,891	14,300	29,964
Mills	2015	96,084	112	6,985	6,988	64,058	13,496	19,374
Mitchell ..	1133	60,872	21	1,410	5,013	47,113	3,244	7,351
Monona ...	350	20,875	5	600	2,134	22,633	9,543	4,324
Monroe ...	3805	150,677	174	8,762	13,583	120,864	31,939	44,337
M'tgomery	596	21,962	6	320	1,713	17,510	4,756	4,974
Muscatine.	6442	231,101	292	17,466	20,514	144,244	34,125	62,748
Osceola ...	....	....	....	....	....	....	....	....
O'Brien ...	....	....	....	....	....	....	....	....
Page	2043	85,743	146	6,246	7,240	58,897	18,405	17,231
Palo Alto .	29	1,235	....	....	477	3,894	182	196
Plymouth .	36	2,070	.....	....	266	2,685	172	354
Pocahont's	34	1,156	....	....	308	2,114	181	311
Polk	4538	217,534	179	7,455	13,685	133,273	27,906	75,949
Pottawat'e	1723	57,419	78	2,660	6,591	48,050	4,228	5,111
Poweshe'k	2847	116,894	103	4,758	8,344	71,286	20,350	31,376
Ringgold..	1377	52,906	98	4,605	4,646	37,954	11,655	11,845
Sac	63	3,105	....	....	520	4,361	333	778
Scott	7342	389,156	448	35,689	20,918	196,221	37,231	65,500
Sioux.....	....	....	....	....	....	....	....	....
Shelby	378	19,418	4	230	1,396	13,924	2,979	3,584
Story	1821	83,672	22	1,260	6,263	52,109	7,457	11,624
Tama	3219	160,232	64	5,270	9,800	92,257	14,053	26,178
Taylor	1453	65,982	70	3,595	5,508	54,403	14,955	14,786
Union	943	34,906	34	1,770	2,978	29,372	7,753	8,032
Van Buren	6889	282,467	460	69,612	19,968	157,877	46,930	57,324
Wapello ..	5504	219,024	425	23,394	19,996	171,097	51,521	62,524
Warren ...	4852	216,426	199	10,830	15,293	138,486	39,014	63,399
Wash'gton	6595	272,481	220	11,436	22,282	173,090	42,543	63,395
Wayne ...	2858	104,053	271	4,854	10,233	82,070	27,350	126,862
Webster ..	943	35,412	16	610	3,853	31,395	4,175	5,892
Win'ebago	52	2,775	....	....	429	4,846	157	346
Win'eshiek	4736	220,629	36	2,101	20,277	178,650	17,033	32,979
Woodbury	207	11,802	2	200	1,433	151,69	1,030	1,231
Worth	275	10,005	4	380	1,769	18,197	804	1,188
Wright ...	299	16,150	9	420	1,625	15,201	738	1,340
Totals ..	275,697	11492,147	12,032	596,671	897,247	7,689,852	1,743,865	2,866,170

HORSES—MULES AND ASSES—CATTLE—SWINE.

The only data we have for a period of thirteen years for the following kinds of stock is furnished by the United States Census for 1850 and 1860, and the State Census taken in 1863. The Censuses of the State taken for 1856 and 1858 do not embrace them:

Year.	Horses.	Asses & Mules	Milch Cows.	Working Oxen	Other Cattle.	Swine.
1850	38,336	 754	 45,704	 21,892	 69,025	323,247
1860	174,957	 5,713	 188,546	56,563	291,145	921,161
1863	275,697	 12,032	 292,025	56,596	548,626	1,743,865

In all the above items, excepting working oxen, our State has advanced very rapidly. Of horses, it has been over 14 per cent. annually between 1860 and 1863; of asses and mules for the same period is over 25 per cent. annually; of milch cows over 14 per cent. annually; aad of swine 25 per cent. annually.

HOGS.—The following table gives the number of hogs sold, and their value, as found in the State Censuses of 1856 and 1858; and estimates deduced from the United States Census for 1860, and State Census for 1863, taking two-thirds of the number reported as sold:

Year.	Number of Hogs sold	Average Value.	Amount sold for.
1856	 403,584	... .$7.74	....$3,127,531
1858	 337,261	.... 6.23	 2,111,425
1860	 614,108	.... 5.00	 3,070,540
1863	1,162,577	... . 7.00	 8,138,039

CATTLE.—We present also a table for cattle sold and the amount sold for, made up from the same data as the above:

Year.	No. of Cattle sold	Average Value.	Amount sold for.
1856	125,779	....$23.00	.... $2,923,253
1858	141,146	.... 20.00	 2,950,187
1860	175,000	.... 21.00	 3,675,000
1863	186,207	.... 21.00	 3,910,347

For hogs and cattle we have the probable amount of $12,000,000 received for them in 1863, of which not less than two-thirds have been shipped out of the State, and $8,000,000 received therefor.

The average in 1860 of *hogs* per inhabitant in Iowa is exactly equal to the average per inhabitant in the three States of Ohio, Indiana and Illinois, being 1.36. The average in the same States in 1860 per inhabitant for cattle, other than cows and work oxen, is as follows: Ohio, 0.34; Indiana, 0.43; Illinois, 0.51. The average of Iowa is 0.43, being a small fraction over the average of these three States together.

The average of all these States on the gross value of their stock of all kinds is $37 per each inhabitant; that of Iowa is $32. We have little doubt that Iowa's average would equal those of the States named, if the value of the stock in each could be ascertained at this time, as we have increased so rapidly since 1860, as appears by the State census in 1863, especially in sheep, the difference being in this one item, as 1,000,000 is to 258,228.

VALUE OF LIVE STOCK.

1850, June, ...	$ 3,689,275
1860, June, ...	21,776,786
1863, January, ...	24,664,840

If the last item had been taken as the *true* value instead of about the *assessed* value, some three or four millions of dollars would have to be added.

FROM THE STATE CENSUS FOR 1862.

Counties.	Land connected with farms.		Manufactures.		Agricult'l Implem'nts.	Crops not before enumert'd
	Under fence.	Not under fence.	Value of Domestic.	Value of General.	Value of.	Acres.
Adair	5476	9767	1480	1069	7628	40
Adams	8786	16689	3832	5831	14472	60
Alamakee	97696	115172	3764	78953	103669	461
Appanoose	95147	80913	38774	4620	80435	621
Audubon	2456	3914	206	181	3379	242
Benton	86673	48578	5328	7250	81839	214
Black Hawk	58675	48832	4126	77148	58465	1364
Boone	25410	31974	17980	22091	39963	316
Bremer	46499	38282	6213	12808	64070	226
Buchanan	67203	50935	2590	20150	56337	386
Buena Vista	...	...	...	...	...	...
Butler	31697	33476	3789	16470	36919	497
Calhoun	1168	4132	197	...	1660	3
Carroll	1907	4411	129	60	1436	208
Cass	11467	17984	98	2010	12333	75
Cedar	160783	48996	3581	727	134814	445
Cerro Gordo	6106	10223	...	...	7088	50
Cherokee	218	693	...	...	102	...
Chickasaw	29902	37661	4180	2500	36832	68
Clarke	38590	42918	12681	7620	44961	549
Clay	...	...	...	...	...	...
Clayton	127297	124840	19095	26295	185624	723
Clinton	177813	79214	2636	36734	168481	459
Crawford	3127	7732	56	300	4598	3
Dallas	37545	57646	9816	31690	43920	183
Davis	105259	115433	36393	25149	93699	1371
Decatur	50421	63619	18116	16328	51764	448
Delaware	113681	60076	5136	45335	112095	3015
Des Moines	128329	84867	8547	197567	89935	1139
Dickinson	619	1418	...	...	1903	...
Dubuque	156908	108862	7993	779625	220338	628
Emmett	...	...	...	...	...	...
Fayette	91094	98500	6939	76531	96322	362
Floyd	28727	43220	4526	9602	46470	294
Franklin	9489	12593	379	...	15770	23
Fremont	28971	59522	13055	4430	37007	12
Greene	8292	15527	2203	925	8348	4
Grundy	11402	10209	358	423	15014	47
Guthrie	18169	23722	2644	14719	28593	134
Hamilton	11550	15068	415	328	14664	139
Hancock	1365	2231	...	...	2925	54
Hardin	38621	36594	4933	15664	44381	100
Harrison	22474	49774	1463	10949	39526	63
Henry	99839	43769	18740	27155	101169	629
Howard	26268	37911	655	8535	32943	3299
Humboldt	2758	4256	558	680	1564	28
Ida	...	...	...	...	...	...
Iowa	60959	58257	2356	3325	59717	1717
Jackson	151658	132775	7166	31708	122952	1214
Jasper	74731	65447	33757	28816	89430	251

FROM THE STATE CENSUS FOR 1862—Continued.

Counties.	Land connected with farms.		Manufactures.		Agricult'l Implem'nts.	Crops not before enumert'd
	Under fence.	Not under fence.	Value of Domestic.	Value of General.	Value of.	Acres.
Jefferson	102013	88626	27743	78876	103566	526
Johnson	134962	67016	2051!7	5633	97760	406
Jones	127487	92437	8970	6033	107301	1059
Kossuth	2190	5751	...	14	3399	...
Keokuk	92418	68629	26448	18164	94753	405
Lee	142113	73473	33335	113162	132251	1673
Linn	141928	89771	6157	22298	154162	2825
Louisa	86478	38648	5319	11281	86591	140
Lucas	36535	53668	13180	1768	43947	280
Lyon	...	...	...	...	...	...
Madison	47983	98214	20800	12878	69652	679
Mahaska	100576	79979	19638	38958	119317	507
Marion	91238	72028	27878	36057	107230	394
Marshall	44888	38757	7738	32134	50599	169
Mills	25037	43346	10266	43910	41655	130
Mitchell	22692	25495	8168	7272	40757	84
Monona	5632	13404	565	4700	10196	53
Monroe	54174	68284	19883	11751	62742	3037
Montgomery	7396	14581	1191	8022	6536	12
Muscatine	106014	68444	4413	108123	124252	1151
Osceola	...	...	...	...	...	...
O'Brien	...	...	...	...	...	...
Page	27291	37417	13586	13127	34174	45
Palo Alto	510	1713	...	...	635	19
Plymouth	600	292	...	...	1210	60
Pocahontas	521	1715	...	...	550	...
Polk	55574	55008	13135	84471	77436	274
Pottawat'ie	17324	26172	6270	1410	13962	80
Poweshelk	44914	37132	4832	3965	55473	178
Ringgold	20224	37468	4009	1662	21842	235
Sac	1340	862	100	150	450	...
Scott	175462	37984	5127	323829	174004	651
Sioux	...	...	...	...	...	...
Shelby	3944	9091	1948	500	7994	32
Story	28673	41552	6545	5796	33381	88
Tama	53363	54335	809	11671	69194	104
Taylor	24697	37477	10186	2183	26771	67
Union	12748	20388	2928	55	15787	65
Van Buren	109678	95120	39690	56643	109961	1796
Wappello	91786	89989	25214	3103	95131	569
Warren	69509	75699	22900	32469	90318	1671
Washington	121109	78500	11055	41396	113168	596
Wayne	44883	48997	15738	3346	49497	313
Webster	12833	23564	13394	2139	13926	43
Winnebago	664	1889	103	1070	2697	12
Winneshelk	122442	135623	5296	42951	118667	750
Woodbury	1179	4795	...	...	4309	2
Worth	4944	12509	335	194	5300	86
Wright	3690	10137	87	...	7222	588
Totals	4,784,886	4,135,613	967,979	2,951,805	$ 5,178,049	44,004

MANUFACTURING, &c.

The following table exhibits the statistics of manufacturing in this State and the United States, compared, taken from the United States Census of 1850 and 1860. It is to be very much regretted that no facts of the kind have been gathered at any time by our State:

	Rank of Iowa am'g the States	Value of Products. 1850.	Value of Products. 1860.	Total val. in the Union. 1860.
Agricultural Implements	22d	17,900	112,590	17,802,514
Steam Engines and Machinery	26th	6,200	186,720	47,118,550
Iron Founding	23d	8,800	187,435	28,546,656
Printing, books, jobs and newspapers	18th	5,450	140,213	39,678,043
Coal, 72,500 bushels			6,500	19,365,765
Sawed and planed lumber	11th	470,760	2,378,529	95,912,286
Flour and Meal	11th	2,019,448	6,950,949	223,144,369
Spirituous liquors, 13 establishm'nts in 1860	16th		81,830	24,253,176
Malt liquors, 39 establishments in 1860	13th		221,495	18,001,135
Woolen goods, fulling and mixed goods, including carding, 23 establishm'ts in 1860	23d	112,454	167,960	68,865,963
Leather	28th	24,550	81,760	63,090,751
Boots and shoes, 118 establishments in 1860	21st	56,533	325,296	89,549,900
Furniture, 60 establishments in 1860	18th	51,805	157,491	22,701,304
Illuminating gas, 4 establishments in 1860.	20th		55,900	11,224,380
Soap and candles, 7 establishments in 1860	16th		113,470	16,960,542

The whole number of manufacturing establishments in the State, on June 1, 1860, producing over $500, was 1,790; in the U. S., 128,300, Iowa ranking the 20th. Of capital invested in manufactories, Iowa had in *real estate* to the value of $7,500,000; in the U. S., $1,050,000,000, Iowa ranking 24th. Of *raw material* Iowa had, including fuel, $8,500,000; the U. S. $1,012,000,000, Iowa ranking 22d. Of the average *number of hands* employed, Iowa had 6,587; the U. S. 1,385,000, Iowa ranking 26th. Of the value of annual product Iowa had $14,900,000; the U. S. $1,900,000,000, Iowa ranking 22d.

From the above we find that the annual product of the United States averages $61 to each person in the Union, which would make for Iowa $41,000,000. Deducting from this her own productions, would leave for her share of the consumption, $26,000,000. Our State census for 1862 gives the value of the general manufactures at only $2,951,805. How this latter item has been arrived at we have no means of knowing; the discrepancy is so great that we suppose the large manufacturing establishments and perhaps most of the smaller ones could not have been visited by our Assessors. The United States Marshals were most thorough in their researches under specific instructions, whilst those taking our State census had only general instructions. It may be that instead of giving the aggregate amount the sum above stated only embraces the nett profits. But this is all conjecture and we prefer to base our deductions upon reliable data, which we believe is afforded as near as can be by the census of the United States. If we do not manufacture 15,000,000 dollars' worth of what we need to clothe us and prepare our food for use, &c., the greater need there is for more manufactories. Ten millions of dollars can safely and profitably be invested in this State in needed manufactories to supply the wants of her people. One or two Woolen and Fulling and Carding mills can find immediate employment in every county in the State of ten thousand inhabitants, because we have not enough now to make the yarn required for our woolen socks, making no allowance for that needed for domestic cloths for farmers' use. Must we send the great bulk of the wool from our *million* sheep to Eastern manufactories to make into cloths for the very families who raise it? Here is in this one item alone an opportunity for profitable investment which casts far into the shade the best paying railroad stock in the Union. All kinds of machinery for working up flax and its products—leather and its products—for making agricultural implements—a paper mill here and there to consume our rags—soap and candle manufactories—furniture manufactories—flouring mills, &c., &c., are needed and would pay well for both producer and consumer.

Our facilities for manufacturing establishments to obtain cheap power is not excelled by any North-western State. On every one of our principal streams of water from three to five good water power sites can be found in every county through which they run; and in nearly one half of the southern portion of the State, and also of the central, good coal fuel is afforded at reasonable cost. Those who embrace these advantages first will reap the cream of the harvest. It is now open to all.

PEAS AND BEANS.

Iowa produced in 1849, of peas and beans, 4,775 bushels, and 45,570 bushels in 1859. It is to be regretted that these items were not taken at the State Census for 1862. As the average increase was something over 4,000 bushels, the yield of 1862 was doubtless not less than 60,000 bushels, taking into consideration the large increase of producers and the increased knowledge of the nature of these crops.

MARKET GARDENS.

Here is another item of considerable aggregate importance, which has not entered into the returns of our last State Census. In 1849 the value of market garden products in the State was $18,848, and in 1859 their value was $141,549. Their value in 1862 could not have been less than $190,000.

MAPLE SUGAR AND MOLASSES.

We have no returns of the product of maple sugar and molasses than is given in the United States Census of 1850 and 1860. In the former year Iowa exhibits of molasses 3,162 gallons, and 78,407 pounds of sugar; in the latter year 97,751 gallons of molasses, and 248,951 pounds of sugar. Eighteen of the States of the Union, as per U. S. Census of 1860, produced in the same year smaller quantities of sugar, Illinois among the number, and twenty-three States a less quantity of molasses. This tells well for a State classed among the prairie States. Since the high prices for sugar we have, no doubt, added not less than 50 per cent. to the above aggregate, and it is to be regretted that the last State Census did not include these items.

ONIONS.

We have no returns of the onion crops from any part of the State, as it was not embraced in the requisition—but the assessor for Scott county, the only county where especial attention is given to this crop, makes an outside report of twenty-five acres in 1862, and a yield of 5,918 bushels, which is an average of 236 bushels per acre. Five hundred bushels per acre is not considered an extrordinary crop in Scott county, in an ordinary favorable season, and we have heard of a yield there of over 800 bushels per acre. A German farmer there says he can make money raising onions at *ten* cents a bushel. It is a pity more attention is not paid to the raising of this valuable vegetable. The average price of onions in the interior of Iowa, for five years past, has been not less than 75 cents a bushel, some times selling for double this price. Many a dollar is lost by our farmers not raising a few bushels of onions beyond sufficient to supply their own wants. Indeed, it is not uncommon for them to purchase onions, cabbage, and other vegetables, for their own consumption, because they think such matters too small to demand the necessary attention.

A GENERAL REVIEW OF 1862 AND 1863.

In taking a review of the agricultural productions of the State for 1862, as given in the State Census for that year, we have produced in value to the amount of 27,000,000 dollars. Of the industrial or manufacturing interests, the United States Census of 1860 places the annual value in Iowa, after deducting the cost of raw material, at $6,400,000, which, using this item for 1862, added to the agricultural products, gives a total of $33,400,000.

For 1863, the value of agricultural productions was not less than that of 1862; and, as the value of the manufacturing interests of 1863 was at least ten per cent. more than in 1860, not less than $640,000 should be added, as also 25 per cent. for the material not included before, as obtained in the State, $1,600,000 more, and for gain in sheep and other stock, and other farm products, about $5,000,000, we have an aggregate of $40,640,000.

If to each of these years is added an average value of $100 on each farm, for improvements and repairs, we have for 1862 a total

product of $42,400,000, and for 1863, $49,640,000. These may be considered rough estimates, but they are based upon data which does not permit a very large over estimate, but induces the belief that they are rather under than over the true value of the annual industrial productions of the State.

With a soil not excelled by any other Northern State, and facilities for its development superior in several respects to either of them, this approximate showing of its products is far below what it should have been, although it exceeds that of any of her sister Northwestern States, and in comparison with population equal to any section of the North. It has all been done on not over one-eighth of the tillable lands of the State, and with a manual agricultural force of about 150,000 persons, one-third of whom were boys, giving an average of a fraction over twenty-six acres to each, an average product to each of about 187 dollars, or something less than seven dollars per acre, in addition to about one-third more for improvements and repairs on the farms.

There is considerable doubt expressed by those who have had large opportunities for ascertaining the average products of the State, in regard to the correctness of our census returns, especially in reference to the average yield of wheat and corn per acre. They invariably place the yield of the former at 15 bushels, and of the latter at 50 qushels per acre, and it is very probable that this estimate is not too large, as well as a proportionate increase for the other cereals. This would give an additional average in value of not less than two dollars per acre, and the gross probable true value of an average of nine dollars per acre, and the sum total of $33,000,000 instead of $27,000,000, and for all the industrial interests of the State the annual sum of $60,000,000, which gives an average of near $86 for each inhabitant. Even with this sum, with such highly favored lands for production, we should not be satisfied, as we can and should produce an average of twenty bushels of wheat and sixty bushels of corn per acre, as well as add for our immediate wants of manufactured articles double the amount for which we are credited, as our facilities of fuel and water power are sufficiently scattered and abundant.

Whether our figures of production are correct or not, within the past five years our people have recovered from the pressure of heavy indebtedness, and are now in a position, generally, of comfort and ease. Those who were borrowers of money five years ago, in many instances, have now money to loan. Amidst all the vicissitudes of occasional short crops, heavy expenditures to sustain an expensive war, supplying the army of our country with 60,000 of the best men in the land, most of whom were employed in agricultural pursuits, our people are comfortable and prosperous, and with a prospect in the future not excelled by any people on the face of the globe.

An inquiry just here in regard to agricultural statistics may be in place. Why is it that we cannot possess ourselves of statistics sufficiently reliable which may be esteemed as such by our people generally? So far as the experience of this office has gone, the statements of one intelligent, observant and reliable correspondent in a county can be more certainly relied upon for correctness than the returns of most of the township Assessors, especially where the returns of the latter have to pass through careless and incompetent county officers to be compiled, footed up, and returned. The importance of reliable statistics cannot be too highly esteemed, as they serve to show the true condition of a people, and to mark their progress, presenting facts for comparison on which can be based important features for improvement. The London Mark Lane *Express* says: "Next to high prices, we know of nothing *so calculated to promote the progress of these* [Australian *colonies*,] as the statistics and reports officially compiled of their agricultural and pastoral condition." We agree with the editor who endorsed this, when he states that "if our authorities, in the United States, could be brought to take the same view of agricultural interests, we have no doubt that a most important influence would be exerted both upon the progress of agriculture at home and upon the course of immigration from abroad."

GROWING THE NORTHERN SUGAR CANE.

We published last spring the following directions in regard to the cultivation of the Northern Sugar Cane and its preparation for grinding. It is the result of the experience of cane growers as given at conventions in Ohio, Illinois and Wisconsin, and obtained from many experienced parties in Iowa. But little information has been elicited since that time—what there is will be found appended to this article.

LAND AND ITS PREPARATION.

As a general rule, high land that will produce a fair crop of corn is well suited to the growth of sorghum or imphee. Old land is generally considered best that has been kept free from weeds. High locations are recommended because affected least by early and late frosts. If, in addition to a high position, it should be rolling so much the better, as it secures better drainage. A light, loamy soil, with all this, should be had. A rich black loam or muck produces an acid syrup. Some say that a poor soil makes the sweetest syrup but that the yield is not so large. The general testimony, however, is in favor of a rich soil, and to make it so, well rotted manure is recommended, ashes, &c.; some even burning straw on the surface to enrich the soil and kill the seed of the weeds. It is asserted by some that land the second year after breaking is the best suited for Sorghum, provided the weeds have not been permitted to cover it.

As a general rule for all spring crops, fall-plowing is best, and especially so for this crop. Deep plowing in the fall and early stirring in the spring, are beneficial

for both corn and sorghum. Deep plowing is necessary because the roots are very strong, penetrating far down. If not plowed in the fall, plow deep in the spring as early as possible. After resting until proper time for planting, take a small-sized stirring plow and throw two furrows together, north and south, all through the field. Mr. Isaac A. Hedges, of Ohio, who has had great experience in growing Sorghum, recommends rows running east and west, for the reason that the west wind-storms are the most destructive, and a crop planted in rows running in the direction of the prevailing winds, will, of course, stand much better than one the rows of which are transverse to such direction. Our farmers must decide this conflict of experience for themselves, by taking for their guide the prevailing winds during the season of its growth, and act accordingly. Have the ridges three and a half feet apart as for sweet potatoes. The air will circulate through the ridges, and it will be warm and dry when the level soil will be wet and cold. It is a plant that wants a warm, dry soil, when the plants are young. It will grow on this ridge at once, whilst on level land it will take several weeks to get started. Cold Spring rains do not affect them as they are out of the way of them. If the ground is weedy, it can be plowed out both ways immediately after planting, if necessary, as the hills are easily seen, and so high that they will not get covered up, as when planted in a furrow. Cane planted in this way will ripen early.

SEED.

A committee at the Rockford Convention, in Illinois, appointed for that purpose, reported in substance as follows, on the best varieties of seed to be used: "That, in consequence of great diversity of opinions and experience of producers, they find it difficult to designate any one variety of Cane to be preferred. It appears that in Winnebago county, any one of the Canes grown, (and all are reported to be tried,) when raised from pure seed, with proper culture and care, produces good results. In the selection of seed, therefore, special regard should be had to the question of its purity or freedom from amalgamation with other plants which tend to its deterioration. The production from the Yellow Imphee, or African Cane, has more frequently resulted in crystallization than any other. This variety is also desirable on account of its habit of early maturing. Of the different kinds of Chinese Cane known in this county, the Committee infer, from all the information before them, that neither the smallest, earliest varieties, nor yet the largest and later sorts, but a medium between these two extremes—the Committee know not by what name to designate it—is most desirable for cultivation. As a means of success they recommend the selection of seed from such crops as the experience of producers has proved most profitable, guarding most scrupulously against every appearance of mixture with all and any of the plants with which the Cane will hybridize. They also recommend the importation of seed, from time to time, from localities where the climate is more congenial to the perfection of the Cane."

The following resolution was also adopted at that Convention: "That, in the estimation of this Convention, there are only three kinds of Cane, viz: Chinese Sugar Cane, having black seeds, growing in prongs from two to seven inches long; the second or tufted variety, to be known as African; and the third variety, lately introduced, known as the Otaheitan, long heads, from seven to twelve inches in length, and from one to two in thickness."

Mr. O. N. Brainerd, of Linn county in this State, says: "I have seen Cane planted from seed grown among Indian Corn run completely out by the third planting, so that there was no juice in the stalks, and yet the seed was apparently perfect." There were but few, if any, of the speakers at the Rockford Convention whose experience justified them in supporting Mr. Brainerd's experience. Still, it would be well to keep all Cane intended for seed, from the influence of all grades and varieties of Corn.

PREPARATION OF SEED.

There are many who, when they have the land properly prepared, and the season is favorable, plant the seed without any preparation, but soaking the seed is generally practiced as follows: Put the seed into a cloth bag and soak in warm water over night, then bury the bag in a warm soil or straw pile until sprouted. Two weeks is said to be gained by this process. Care should be taken not to have the water so hot as to scald the seed, as some have lost their seed in this way.

It requires nearly three times the length of time to sprout the Sorghum that it does for the Imphee.

TIME OF PLANTING.

It would be altogether useless to attempt the naming of any particular date for planting. Seasons differ; hence it can only be advised to plant as early as the ground, by being dry and warm, seems fit for the seed, and then plant shallow—very shallow—from one-half to one inch in depth. It is well to know that the cane will bear transplanting. In this way missing hills may be supplied, or early crops grown, by starting in hot beds, and transplanting in May or June. It can be planted to good advantage, one week before corn, for if it is cut off by frost, it will shoot right up again, more stocky than before.

PLANTING.

An experienced grower says: Put ten to twenty seeds in a hill, and plant on the ridge. If the land is poor use less seed. What is wanted is to have main stalks enough to prevent suckering, which is secured by having a large quantity in the hills. A main stalk three quarters of an inch through contains as much sacharine matter as one two inches; therefore, an acre of stalks, four to the hill, yields one quarter as much syrup as an acre of stalks sixteen to the hill. Twelve gallons of juice from the large stalks (or four in the hill) will make one gallon of syrup, and four and a half gallons of juice from the smaller stalks (or sixteen to the hill,) will make the same amount of syrup, and of a better quality—consequently four hundred gallons of syrup can be made to the acre as easily, so far as cultivation is concerned, as two hundred gallons. The same person says that he has had twenty-five stalks to the hill, and there was none too much then, as the stalks were all perfect, with no suckers among them. Suckers must be avoided, as when they are permitted to grow up they detract greatly from the strength of the main plant, and impede the workmen in gathering the crop, as they are often in doubt which to select and cut; besides, if gathered along with the main stalks and sent to the mill, they impart to the syrup a wild grassy flavor, together with an excess of acid, which is difficult to remove, and which proves a positive barrier to the manufacture of sugar.

CULTIVATION.

The young cane is very diminutive, and is hardly distinguishable from the foxtail or summer grass, hence the importance of clean ground. The plants require no other or greater attention in the way of hoeing than is bestowed upon Indian or broom corn. The amount and manner of such cultivation will differ in various seasons, as is well understood, by our corn growers. Do not plow among it after it gets two feet high, as it prevents its ripening, and it will not have as much saccharine matter in it. Some crops have been ruined by too long cultivation.

CUTTING AND HANDLING.

The only explicit, reliable and sensible directions for cutting and handling are given by Mr. Hedges, in the U. S. Patent office report for 1861, which we give entire, as follows: "As has already been intimated, in reference to the time for planting, the time to commence cutting depends greatly upon the season, varying as the weather has been more or less favorable for maturing the plant. Of one thing, however, we are certain, viz: that as soon as frost has killed the foliage and seed tufts, the cane will gain nothing by standing out in the hill; on the contrary, if the stalk has been frosted, and is left exposed to the warm sun, it will commence much sooner to ferment in its juices than if cut and stacked or housed. Previous to cutting, the leaves should be stripped off by hand, if desired for fodder or if they are desired to be left on the ground, by a smart stroke of a stick about four feet long. The seed heads, together with about four feet of the cane, should be cut off and tied into small bundles with the leaves; they are far better as food for every kind of stock than sheaf oats, and are richly worth saving.

"After the canes have been stripped and cut, as above directed, they should be cut off near to the ground, and tied in bundles of twenty or thirty stalks, with the wilted leaves. Each bundle should be tied in two places, which will greatly facilitate the subsequent handling. In this condition the cane may be set up in ricks in the open air, or, preferably, under shelter, and kept for some weeks. Such keeping improves the juice not only in flavor, but also in saccharine richness, from one to three degrees." Care should be taken to keep the stalks from the earth, especially if the earth is wet, as the severed end will absorb more or less of the soil which affects the syrup injuriously. In this, as in boiling, keep every part liable to enter the juice scrupulously clean.

"If, at any time while the cane is standing, a sharp freeze should occur, the whole crop should be slashed down and thrown into wind rows, with the tops uppermost. If much difficulty should then arise in stripping off the leaves, the canes may be ground with the leaves adherinig, but the tops should be freely cut off. All possible dispatch should be used after freezing in getting the canes through the mill, lest a warm sun should come out, and fermentation and souring commence. The frost does no harm of itself, but when the warm weather follows the mischief is done." In regard to the necessity of stripping the leaves from the stalk, the statement made at a sorgo convention held at Columbus, Ohio, on the 6th of January last, elicited the fact that equally as good samples of syrup could be produced *without* as *with* stripping, and that unless stripping could be dispensed with the profitable culture of home made syrup must be abandoned. Will not experiments be made in our State the coming season to test whether stripping is absolutely necessary?

MILLS AND GRINDING.

Perhaps two-thirds of the syrup made in Iowa is received from the wooden mills, which are generally so badly constructed that not more than one-half of the syrup can be made from them as can be done with the iron mill. They should be discarded so soon as possible and iron mills substituted. Mr. O. N. Brainerd says: "A one horse mill will answer for a small lot, which can be obtained for $40, warranted; but a two horse mill is better, with one 18 inch roller and two 9 inch rollers, as one man with two horses can press enough juice in ten hours to make from 100 to 150 gallons of syrup—which costs $85." Another experienced person says, that to purchase a one horse mill would be throwing away money. Just at this point, however, as we are writing for the benefit especially of the small manufacturers, it is difficult to know what kind of information will benefit the larger class of syrup manufacturers, unless they adopt the only proper plan, especially if economy is consulted, which is to crush the cane with the iron mill. Better take the cane a reasonable distance to such a mill and give one-half of the yield for making it into syrup than to make it on a wooden mill. But the expense of hauling it to such a mill may be avoided by engaging some experienced party who has a portable iron mill and evaporator to work the cane in the field where it grows. If a neighborhood within a circle of ten miles, would guarantee about 50 acres to work up to any person with an iron mill, it would amply pay the manufacturer and producer, and there would be a saving of at least 25 per cent. to the producer over that worked up on a wooden mill and with a common pan.

With the present facilities for manufacturing in this State, the average cost of the production of the syrup, after deducting all expenses, cannot probably be less than 25 cents a gallon. If the grower would have it worked up as suggested he would save from five to ten cents a gallon. Even at the highest cost named he saves considerable in the item of "sweetening" for his own family, but it can be made to pay better when manufactured in a well arranged establishment, according to a good method or system—in such an establishment the cost of manufacturing a gallon of syrup should not exceed six cents. Even should it require the concentration of all the surplus capital in a neighborhood to establish and carry on such works, it had better be done than that a number of diminutive establishments should be started to prove so many failures. It would lengthen this article too much to give all that should be said in regard to setting up and using the iron mills. Those who buy them will doubtless receive all the necessary instructions from the manufacturer, but if so or not, their attention is directed to some very valuable experience on this head in the Patent Office Report for 1861, page 297.

SORGO CONVENTION IN WISCONSIN.

On the 6th of February, 1864, there was a large convention of sugar cane growers held at Madison, Wisconsin, at which, after a full discussion, the following resolutions were passed:

Resolved, That it is the sense of this convention that high, dry and rich lands are preferable for profitable cane growing, to low and rich lands, but that good ordinary corn lands are generally safe for successful culture.

Resolved, That where extensive crops of cane are to be grown, we recommend the early planting of both early and later maturing varieties, to give succession of ripening for convenience in manufacture.

The following resolution, which was passed unanimously, which is so contrary to all experience here or elsewhere, is inserted here under protest, and not with the view of its general adoption. Under very favorable circumstances it might perhaps, be safely tried:

Resolved, That it is the opinion of this convention that it is the safest way, under all circumstances, to plant the seed dry, and very lightly—not to exceed one-fourth of an inch in depth, and as early in spring as the ground is sufficiently warm to warrant the hope of an early germination.

Mr. Willie offered a resolution that experiments in soaking and transplanting be continued, with a view to report at next meeting—unanimously adopted.

Manuring.—On the subject of manures there was the usual difference of opinion. Some had produced a bad syrup from the use of strong animal manures. Others thought if the same was well rotted and thoroughly incorporated, no bad effects would follow. Every one admitted that a larger growth of cane was the result of their use. In one or two instances the cane on highly manured soil grew pithy and destitute of saccharine matter.

Mr. Plumb offered a resolution recommending the use of plaster, ashes, or lime applied to the hill, as a stimulus to an early and rapid growth, especially in clay soils.

After discussing the merits of these fertilizers the resolution was adopted, after striking out the words "clay soils."

When to cut the cane.—There was a diversity of opinion as to how long cane may be kept without injury. If properly cared for, several weeks, or even months, might ensue between cutting and working. The matter was finally closed up with the following:

Resolved, That cane is frequently improved by lying for some time after being cut, and that it can be safely kept in dry, sheltered places, for many weeks, without spoiling.

Mills.—Upon the subject of machinery one whole evening and part of a forenoon were consumed. The relative merits of horizontal and vertical mills were fully canvassed. Except for very small crops the horizontal mills seem to be almost universally adopted. A resolution stating it to be the sense of the convention that the horizontal mill is the most desirable, was passed.

Seeds.—The committee upon seeds recommended for general planting the Chinese cane, but not to the exclusion of all other varieties; that seed should if possible be obtained near the vicinity where to be used. If from abroad only reliable sources should be drawn upon. It recommended not to mix varieties, and not to plant in the close vicinity of broom or other corn. The report was accepted and adopted.

SORGO CONVENTION IN MICHIGAN.

At this convention, held in January last, nothing was determined upon; but during the progress of the debate on seeds Messrs. C. Cary & Sons, of Lima, Indiana, submitted the following statement as to the merits of the Otaheitan cane:

"The great attraction of the Otaheitan cane, we have found to be in its superior sugar making properties. Besides the numerous good reports of it coming to us from abroad, we have ourselves made actual experiments on it for two successive seasons, and hence have practical knowledge of what we here state. In our first year's limited experiments with this cane the syrup commenced granulating on the evaporator, and portions of it taken promiscuously from the lot and kept in a warm room for twelve hours, became a solid mass of well crystalized sugar. The remainder, under poorer treatment, granulated to nearly the same extent. That this production was not of an inferior grade, we have the enlightened testimony of many experienced judges."

"Our second year's experiments, notwithstanding extreme drought, early frosts, and damaged canes, have been equally successful. In these numerous experiments we have found quite uniformly, in our more matured canes, the same easy, natural tendency to granulation. Sample after sample that we have taken from different lots of Otaheitan syrup at the time of manufacture, and retained in a warm temperature, have soon become solid with sugar, while other portions of the same lots have extensively granulated without further care or facilities. In short, from what we have already seen and known in relation to this species of cane, we can but indulge the pleasing hope, that with due attention to the subject, its choice sugars will soon be numbered with the staple productions of our country."

[Between sixty and seventy pounds of this variety of seed will be distributed this spring from this office, which from personal experience I am satisfied is the best grown—Secy.]

GROWING AND PREPARING FLAX FOR MARKET.

FIBROUS PLANTS.

At the present time when the attention of the entire civilized world is turned eagerly toward the whole class of fibre-producing plants, to solve the great questions: What shall we use for the manufacture of all the lighter textile fabrics?—What shall we do for paper stock?—How shall we procure at a moderate price the material for cordage, for twine, and for other purposes of analagous character? it is certainly not requisite that we should make any apology for saying a few words on the subject of fibrous plants.

The fibres used in manufacture are all derived from one of three sources: the leaves of plants, the bark, or in some cases, the wood, and the capsules, pods, or fruit.

Of leaves yielding fibre, there are many examples, most of them in tropical or semi-tropical countries. As a general rule, it may be stated that all leaves having parallel veins will yield fibre, some, of course, of better quality than others. The common cane, the maize or Indian corn, the lily, the cat-briar, the water lily and most of the grasses, are the best examples of leaves producing fibre in temperate countries; in the tropics, the various species of the agave, the yuccas, the plantains, and the great family of palms, are the most frequent sources of fibrous products brought into the market. Manilla hemp, Sisal hemp, silk grass, &c., are obtained from these plants.

Of plants having fibrous bark, the number is very great, and a large portion of them are natives of the temperate zone. Some of them are trees, such for instance, as the linden or basswood, which forms so large a portion of the forests of the Apalachian chain, and the wild fig, or banyan tree of the tropics. The greater number, however, are herbaceous, like the mallows family, many of which are experimented upon for the material for paper stock; the nettle family, all of which have fibrous stalks; to this family belongs the common hemp, the flax family and some varieties of the pea and bean family, such, for instance, as the crotolaria, which produces the Sun or Bengal hemp. The stems of these plants consist of a woody core, surrounded by a sheath of fibrous texture, the sheath and core being united by albumen or vegetable glue, which cements them into a solid stem. In the preparation of these fibres for maaket, the objects to be accomplished are, the softening or partially dissolving of this vegetable glue, and the removal of the woody core, without weakening or breaking the fibre.

Of fibres contained in pods or capsules, the most familiar type is cotton, though some very beautiful fibres and capable of making textures of great beauty, are yielded by the plants of the silk or milk weed family, forming *Asclepias Syriaca* and *Incarnata*.

It is a fact not so generally known as it ought to be, that the natural color of all fibres is *white*. When they come into market of any other color it is due to some imperfection or objectionable process in their preparation for market. In the leaf fibres, they are usually superficially tinged with the *chlorophyll* or green coloring matter of the plant, and if they are suffered to decay in heaps, or if iron instruments are used in the separation of the green or moist fibre they become permanently deadened by chemical action; if, on the contrary, the fibre be beaten out under water with a wooden beater, it will be produced of a beautiful snowy whiteness; this discovery was made, we believe, by Mr., J. E. Mallery, of New York, who has taken out a patent for the process.

Another fact, the discovery of which is due to the same astute observer, is that all vegetable fibres are composed of smaller filaments having pointed ends, and that in the natural condition of the fibre these filaments are joined to each other by the lapping or over-reaching of one filament upon another. To illustrate this by the case of the common flax: A thread or line of flax, properly dressed, is from twelve inches to four feet in length, a flat ribbon, though with occasional twists. If now this line of flax be moistened, and pulled strongly, portions of it will part, not by breaking squarely, but by pulling apart overlapped portions, where the thread appears a little twisted. Upon examining these ends with a microscope, it will be found that they present a uniform appearance, like this ⇒ ⇒, and that the pointed portion being presented and lapped a little upon its fellow, readily twists upon it and forms the line again. This fact shows conclusively the impracticability of the process of making flax cotton by cutting the flax stalks into short pieces with square ends, as they will not when so cut unite firmly to make a strong thread.

The removal of foreign substances from the fibre, or rather of those substances which though appertaining to its growth and perfection, are yet foreign to its use as fibre, has been in the case of all fibrous plants a difficult problem. In the leaf fibres of the tropics, it is a very slow process, performed by rude methods which impair the value and beauty of the product, but hitherto no better process has been introduced. In the pod or capsular fibres the discovery of the cotton gin, by means of which the seeds were removed from the cotton, inaugurated a new era in the production of that staple, greatly increasing its production and cheapening its price. In the cortical or bark fibres, the removal of the woody core and the softening of the albumen or vegetable glue, which binds the fibre and the core, shoove or boon, as it has been variously called, together, have been the great difficulties which have prevented the greatly increased production of this class of plants, and have rendered flax and hemp (the most largely cultivated of the cortical fibres) less abundant and cheap than cotton.

The methods adopted for partially decomposing the vegetable glue or gum have been various. They all aimed at the same result, the weakening and partially dissolving its adhesive power. The three processes most in use are known as *water-retting*, or *rotting*, *dew-retting*, and *steam-retting*. The first where the quantity of flax is small, and the process can be carried on in running water, is probably the most effectual; but where the quantity of flax is large and the water is still or stagnant, the effluvia is very offensive, and injurious to health, producing a malaria analagous to that induced by the decay of vegetation in tropical countries. Dew-retting is less objectionable in these respects, producing no malarious effluvia, but it discolors the flax somewhat, though not to such an extent but that it can be readily blanched, without any serious weakening of the fibre, which is really stronger under this process than under that by water-retting. The steam process, of which great hopes were at one time entertained, proves altogether faulty, both from its coagulating and thus rendering still firmer the vegetable glue, and from its permanent discoloration of the fibre, acting as it does as a mordant to the vegetable juices of the plant.

But the trouble of the flax and hemp producer was not ended with the retting, in whatever manner that might be accomplished. The vegetable glue though weakened was still sufficiently strong to hold the shoove or woody core in pretty close adhesion to the fibre, and in the effort to remove it by the ordinary brake and scutching machine, a very large per centage of the fibre was broken and tangled, so as to become tow, a product of some value, but much less than that of the long, unbroken flax. Many modifications of the flax and hemp brake (more than one hundred in all we believe) have been invented, but they are all liable to the same objections; most of them were dangerous to the hands and arms of the operative, and all made about the same amount of tow. Last year a machine was invented and patented by Messrs. Mallory and Sanford of New York, which has borne the test of practical use in Europe, in this country, and is pronounced by all flax dressers who have tried it, immeasurably superior to any other, and is regarded as introducing as complete a revolution into the culture of flax as did Whitney's Gin into the culture of Cotton.

By an ingenious arrangement of fluted rollers of different sizes, so geared as to produce backward, forward, sideways and reciprocating motions, the woody fibre is broken, split, bent and twisted, and rubbed off the flax, leaving it in a silky and soft condition, entirely different from that dressed by the ordinary styles of brake, and needing little more than a good shaking to remove the remaining shooves, while the tow is reduced to the minimum point; 1,000 lbs. of flax straw, not of the best quality, yielding 221 lbs. of dressed flax, and only 32 of coarse and 6 of fine tow, while with the very best of the old-fashioned brakes, the same quantity of the same straw yielded only 185 lbs. of dressed flax, 86 lbs. of coarse tow and 18 of fine ditto.

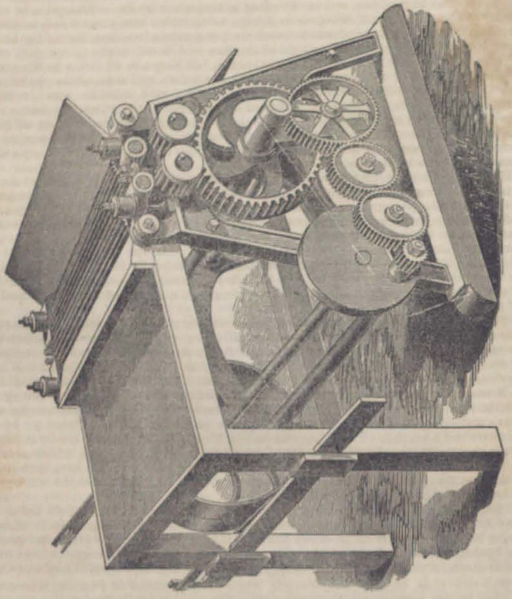
The improvement in the future of the scutching process, which is almost rendered unnecessary by this new invention, will render the business of flax-dressing so easy and perfect, that we cannot but anticipate an impulse given to the culture of flax, like that which was imparted to the cotton cultivation succeeding Whitney's invention. We only hope that the inventors of the flax-dressing machine may reap a better pecuniary reward than that which was received by Whitney.

If it shall be deemed desirable, hereafter, to spin flax upon cotton machinery using a shorter fibre, the true method, we are persuaded will be found to be to separate the filaments of the long ribbon-like fibre by traction, and not by cutting. Thus shortened, there is no species of goods, now made of cotton, which cannot be produced as cheaply and of better quality of flax, and we shall look with interest upon the great development of the flax-growing interest, under the beneficent influence of this new and important machine.

We ought to say that by this process of Messrs. Mallery & Sanford the seed may all be saved without injury to the fibre, and that the vast quantities of flax straw hitherto thrown away every year in Ohio and some of the other flax-growing States, can be made to yield twenty-five per cent. of their weight of the best paper-stock in the world, and in many cases, textile material of still higher value.

The late Hon. Henry L. Ellsworth, when Commissioner of Patents, was wont to say of any remarkable invention, that "it would revolutionize the world." Here is an invention to which that eulogium may be more fitly applied, perhaps, than to almost any other in the last quarter of a century. When the war for the preservation of the Union had inevitably struck a deadly blow at the culture and export of cotton in the Southern States, and our own mills, as well as those of Europe, were closed or running on half or quarter time, in consequence of their limited supply, the culture of flax receives a new impulse which bids fair to make it the successful rival of cotton, through the invention of this machine, which by the wise ordering of Providence had been delayed to the very time in which the need for it was imperative. The substitution of flax for cotton in the vast manufactories of Europe and America, would be a revolution in the civilized world, peaceful indeed, but mighty, as changing the entire agriculture of a people, and not of one people only, but of many; and when it is accomplished and the inhabitants of our vast river valleys are clad, as were the inhabitants of the valley of the Nile, four thousand years ago, in fine linen, we shall have a new illustration of the truth of the declaration of Israel's greatest and wisest philosopher: "The thing that hath been, it is that which shall be; and that which is done is that which shall be done; and there is no new thing under the sun."

The following cut represents the Mallory & Sandford Flax and Hemp brake above described:



By their use one ton of good straight, rotted flax, (the average product of one acre), will produce $100 worth of good dressed flax, at the average market value in New York.

An experienced operator in dressing flax, living in the State of New York, says "that with skilful use, it will yield, when tender straw is dressed, at least ten pounds of lint to the 100 pounds of straw more than any other machine in use; and that it can be worked without the slightest risk to the operator." The manufacturers say of it as follows: "Our flax and hemp machine occupies about four feet by four feet, and weighs about 1200 pounds. The machine with two horse power, will break 2500 pounds of rotted or unrotted, straight or tangled straw—per day, taking all but 10 to 15 pounds of shoove to the 100 pounds of straw. Straight, rotted straw requires to be scutched, and then it will bring the highest price. One man will scutch from 100 to 200 pounds dressed fibre per day. The iron work for a scutching machine, costs from $25 to $35, and the wood work about $10.

Tangled flax can be finished, after passing through this machine, by running it through a picking machine, and it is then worth from three-fifths to four-fifths as much as long flax. One picker will pick the flax dressed by two or three breakers,

and costs from $75 to $150. Unrotted flax is treated in the same way, but is only fit for paper, and brings less than half the price of rotted flax; it may, however, be rotted after as it is cleaned. Machines for taking off the seed, cost from $30 to $50, according to size, and remove the seed with great rapidity. The price of the *breaker* at manufactory, is $355, ready for the belt; it can easily run through 2000 pounds of straw per day. Smaller breakers are made to be run by hand, at a much less price.

NELSON STILLMAN, Esq., North Water Street, Chicago, is the North-Western Agent for the sale of the above described machines, as also for the other machines described in this article. In a letter recently received from him he says: "We are making some experiments in water rotting flax-cotton, &c., and I send you a few samples and hope before long to be able to communicate to you that we are successful in producing considerable quantities of it." The specimens mentioned were received and are to be seen in this office. They have attracted considerable attention and elicited much commendation from all who have examined them.

The interest which our farmers have exhibited in regard to flax growing leads us to think that a limited supply of seed will be the only barrier to its cultivation to some extent by nearly every farmer in our State. If one of Mallory & Sandford's breaks was set up in every county, and an oil mill in every three or four counties, a good market would be afforded for both seed and straw, and lead to its more extensive cultivation.

"The motives for the northern farmer to sow a part of his fields with flax-seed, are very great, from the new uses to which flax is being applied in this country —such as paper, batting, wadding, belting, druggets, warp for carpetings, delaines, calico, stockings, felt hats, and as a mixture for woolen goods of almost every description. The old uses for twine and linen goods are increasing every day. There is no danger of overstocking the market. If not a pound of flax were used in this country, there is a large demand for it in foreign countries. Great Britain imports more than ninety thousand tons annually of flax and hemp, and has at this time more than a million of spindles at work. She has a capital invested in the linen manufacture of more than forty million dollars. She admits the raw material free of duty, but as she is careful to sell more of her manufactures to other countries than she buys, she gets a specie balance in her favor."

GROWING FLAX, &c.—The following information in regard to the culture of flax, is obtained from two experienced growers of flax in Rensselaer and Washington counties, New York, where flax has been extensively and successfully cultivated for the last fifty years.

Statement of Harry Wilcox and Enos Durham:—"Generally any good corn land will grow good flax, but we consider the best land in our section is an upland, gravelly loam, which yields the finest lint, and is generally best coated. Seed should be sown as early as possible, but not so early as to be injured by frost. One bushel of seed to the acre as a general thing would be sufficient, but when the land is strong five pecks would be better. We generally sow from the fifth to the tenth of May. If the land is rolled after sowing the seed, the crop may be cut with the reaper instead of pulling—it would also benefit the crop.

"The time to pull or harvest the crop is when the stalks begin to turn yellow, and the leaves begin to drop off. The cost of pulling per acre is from five to eight dollars—when pulled or cut it should be placed on end as shown in fig. 1, or bound in bundles of from three to four inches in diameter and stacked in small shocks so

FIG. 1.

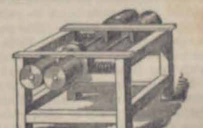


FIG. 2.—Scale of ½-inch to the foot.

that the air can circulate through it freely until dry, then it should be taken to some convenient place for taking off the seed. The best machine for taking off the seed is shown in fig. 2. The flax is taken in both hands and passed down through the pulleys or rollers until the bolls are all broken, the seed dropping below.

"The flax for retting or rotting should be spread on grass land, and if in dry warm weather, early in the season, it ought to be spread on low meadow land; if late in the season any grass land is suitable. At any season of the year it should be spread thin, not more than one pound to two feet running measure. It should be allowed to remain until the fibre turns silver grey, then turn and let it remain until the other side is like the first. In turning, a pole is used from eight to ten feet long as shown in fig. 3. If the weather is rainy and the straw in consequence is liable to be over retted or rotted, in order to save it, it should be placed on end in small shocks of from two to three feet in diameter and remain until dry weather.—When dry it should be bound in bundles of convenient size for handling, and either stacked like oats and thatched on the top or placed under cover. If stacked, the seed ends should point to the centre of the stack.

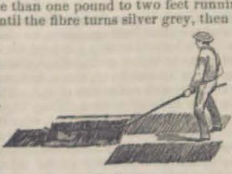


FIG. 3.

"One year with another, one acre of good corn land will yield one ton of retted or rotted straw, an average of from ten to twelve bushels of seed, and an average of from 400 to 450 pounds of lint (if the most approved machinery is used in dressing), which is now worth in this section 25 cents per pound. We sometimes let out the whipping off the seed and rotting, and the average price paid is three dollars per acre.

A SUBSTITUTE FOR PLOW AND HARROW.

COMSTOCK'S ROTARY SPADER.—When at the Illinois State Fair last fall, I witnessed the operations of this novel and effective Agricultural implement. A writer in the Patent Office Report for 1859, in reviewing the steam plows of Europe and America, says: "Every one knows, (or should know), how much better is the preparation of the garden by forking up and raking, than by turning with the plow and harrowing; and the implement desired now, *in place of the plow*, is a *forking* or *digging* machine, that shall, at *one operation*, stir the ground to a sufficient depth, leaving it as nearly as possible in the condition of a garden-bed prepared with a fork."

All this can be done with this spader, as has been proven on numerous farms in Illinois this year, and as was shown to the satisfaction of thousands who witnessed its operation on the Fair Grounds, where it was constantly in motion, drawn by two horses, attended by the intelligent inventor, who took great pains to exhibit and explain its parts to all inquirers.

This implement is almost fully described in the name—*Rotary Spader*. As it rolls over the ground, section after section, of flat pointed teeth, about eight inches long, are inserted in the ground nearly their full length, working three feet in width. It is made in all its parts entirely of the best of iron and steel, and cannot easily get out of order. The power required is four horses; the driver riding on the machine. After these facts are stated, the value of the machine is best ascertained from the work it accomplishes, and the comparative value of that work, with that done in the common way of preparing fallow ground.

Mr. J. B. Barnes, of Cornville, LaSalle county, Ill., who has one of these Spaders, writes to the "Prairie Farmer," of June 6th last, that "with four horses he spaded seven acres of corn ground in seven hours; the stalks having previously been raked and burned, and that it worked beautifully." A neighbor of his writes: "The land was well adapted to the purpose of testing the machine, being part slough, with patches of blue grass; corn grew on the dry portions last season, the stalks of which had been dragged into piles and burned. With the exception of the blue grass, the work was performed in a satisfactory manner, on both dry and wet land, and the weeds were covered equal to ordinary plowing immediately harrowed. Four horses worked the machine which spaded seven acres in seven hours. It is not uncommonly laborious for the team. The land was better pulverized than a plow could have done it, especially in the slough."

As to other advantages, another Illinois farmer who used it, says: "The ground has been more free from weeds, and more easily cultivated, being less lumpy than the plowed land, which had also been thoroughly harrowed; that the growing crop was then, (August 24th,) materially larger on the ground spaded than on the plowed—both pieces receiving the same cultivation." He says the same results were exhibited on a neighbor's crops.

Estimating that a team can travel sixteen miles a day, and throw up from six to eight inches of earth, six acres are spaded, or as much as is done by three pairs of horses, three plows and three men, without walking, it is a saving of one-half the cost of plowing, which soon pays the cost of the machine, to say nothing of the increased production of crops, which is alone sufficient to more than meet the interest on the investment.

As the Spader has been used on numerous farms in Illinois during the past season, Mr. Comstock will be prepared in a short time, to inform the public more fully, the comparative benefits of this over the ordinary modes of preparing the soil. It should be stated that the Spader requires a clear surface, and works only on old ground.

Address C. Comstock, Milwaukee, Wis. Price $200.

IMPROVED CORN CULTIVATOR.

The following described cultivator was exhibited at the field trial of implements at the Illinois State Fair in September 1863, with about eight others. Although the Stafford cultivator took the premium at that trial, this cultivator of Mr. Furnas, received the premium at the field trial at Bloomington, Illinois, the same week, over six other competitors. We consider it equal if not superior to the Stafford cultivator, having witnessed the working of both at Bloomington:

"It is claimed for it that it does the work of two men as compared with a double shovel plow; that any boy who can drive a team can manage it; that the weight of the driver is balanced so as to avoid all weight on the horses' necks; that the shovels are hung to run any depth; that the arrangement in the handles in the ratchets change the depth of plows whilst running, on one side or both as may be desired; that the seat of the driver gives him a full view of the work before him; that the plows are easily controlled with the feet, leaving the hands free to manage the team; that it has an easy mode of throwing the plows out of the ground for turning or clearing the shovels of stalks, &c., by a pair of treadles convenient to the feet, still leaving the hands free to turn the team; that the shovels can be easily and rapidly adjusted to a greater or less width; that having a good side government it can plow as crooked corn as any other of the riding corn plow class; that it has adjustable clod fenders, which if properly set and used cannot choke by corn stubs; that the side beams are pivoted to the main beam, consequently the back shovels can be readily set to a greater or less depth; and which is considered of the first importance, that the jointed feet with the flat coulter bar or stay rod, are so arranged that should the shovel strike a root, stone, or underground stump, it breaks a wooden pin which allows the shovel to pass over it without injury, and is ready for work again on replacing the pin, which can be done in a minute.

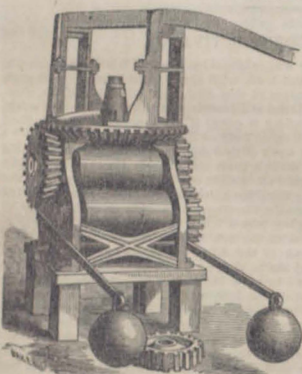
It was patented by Wilkinson Furnas, of Ononwa, Louisa county, Iowa, and is manufactured at Moline Plow Factory, Moline, Ill. Price between $30 and $40.

HAND LOOM.

When our farmers' wives are striving to economize in every possible way, they may thank us for informing them about a hand loom we saw at the Illinois State Fair; we refer to Unverzagt's loom, one of the most prominent labor-saving machines on exhibition there, attracting crowds to witness its beautiful and effective operation. The proprietor, in his advertisement, describes it and its capacity as follows: "This loom for farmers' use, for weaving all kinds of country goods, is designed to supercede the old hand loom. It requires less labor, less skill, makes better goods, and four times as much in a day. Its parts are all self-changing, requiring no skill to weave; it lets the warp off the thread beam, winds up the cloth, throws the shuttle, and treads the treadle, all by simply turning a crank. On the old loom, it requires six awkward motions to put one thread through the warp —on this loom, but one motion. On the same warp in this loom, with the same "drawing in," jeans, satinets, linseys, blanket twill, tweed, double plain cloth, etc., can be woven, and the changes in the machine from one kind to another, can be made in five minutes. The warp is "drawn in" but one way for all kinds, and is beamed the same as in the old loom. It is small, neat, light, and convenient, not occupying more space than an ordinary breakfast table."

Address Unverzagt & Co., Richmond, Ind. Price of a loom to weave one yard wide, $75.

CLIMAX ADJUSTABLE SUGAR MILL.



This mill is manufactured by E. W. Skinner, of Madison, Wisconsin, and was awarded the first premium, after a thorough trial, at the Illinois State Fair 1863, at Decatur. As it has peculiar features and merits it is deserving of a special notice and description in this report.

The annexed engraving very correctly exhibits the form and main distinctive features of this premium cane crusher. It differs from other mills in two important points: 1st—In the use of bearers and weights to regulate the pressure of the rollers, instead of set screws or keys. 2d—In the arrangement of its driving gear on the top of the mill, and in attaching the sweep to the standards bolted to the periphery of the crown wheel. The advantage of this arrangement of the gearing will be apparent to all who have had much experience in the use of sugar cane mills; but it must be seen in operation to fully appreciate the advantage gained by the use of the bearers and weights. They insure a constant unvarying pressure of five to eight tons, as desired, on each end of the lower back roller. This presses the largest as well as the smallest stalks equally dry, and with much less power, it is claimed, than required by any other mill, which is doubtless the fact. They also guard against breakage. The examining committee of the Illinois State Fair were very particular in examining this feature before awarding it the premium. They tested its efficacy on the largest and smallest stalks run through side by side, and by handsfull run through indiscriminately. In each case the bigasse was much dryer than from the set screw or rigid mills.

Another advantage is claimed for this mill which becomes apparent in making syrup from juice expressed by it. When two or more stalks fall in cross-ways or on top of each other, the adjustable roller will ease up and allow the lump to pass through without extracting the rank green juice from the bark or joints. A rigid mill, if keyed up to a density sufficient to pass single stalks tolerably dry, requires great power to carry such knots through, and the extra pressure takes from the bark or rind its disagreeable juice, which is deleterious in making good syrup.

The weight of the mill is eleven hundred pounds. It has three rollers sixteen inches long and ten inches in diameter. It is well and substantially planned and put together.

Mr. Skinner also manufactures a large sized adjustable mill, designed for large works or plantations, a model of which was on exhibition at the Illinois State Fair. This mill has a compound leverage which gives great additional pressure without corresponding increase of weights. Either mill can be geared to run any power or speed. We regret that we can not give the prices of the several sizes made by Mr. Skinner.

We were so well pleased with the working of the above described mill, which we witnessed at the Illinois State Fair last fall, that we wrote to Mr. Skinner in regard to obtaining one for the use of our Agricultural College Farm. His public spirit and friendship for such institutions prompted him to donate one to the Board of Trustees for use on the farm, which they gratefully accepted. It will be given a fair trial and reported to the public, which can hardly fail to be favorable.

THE PRIZE GRAIN SEPARATOR OR FANNING MILL.

Mr. Joel Dayton of Decorah, Iowa, exhibited to us and the members of the Legislature, the operation of a Grain Separator or Fanning mill, patented by C. Kathan, of this State, Oct. 14, 1862. Its points of merits are as follows:

1st. It has a feeder running in the throat of the hopper which prevents it from choking or clogging.

2d. It has a perforated zinc with holes sufficiently large to pass the wheat and not the oats.

3d. It has two shoes, the object of which is to work the zinc on; it also has a screen on the bottom of the shoes, upon which a hammer plays between two screens, a thing unknown in other fanning mills. This hammer playing upon a wire stretched across the seives, causes a vibration of the screens, thus preventing them from clogging up, the seed wheat running through the zinc into the bottom shoe and conducted out of the mill.

4th. It has an elevator that sacks the wheat when cleaning for market, so that in none of the processes is any of the wheat wasted on the ground, but all goes in the sack or measure. It will clean at the rate of one bushel per minute for seed, and two bushels per minute for market.

5th. It is operated exclusively by hand power.

For simplicity and practical utility it is deserving the attention of our farmers. It received the general commendation of those farmers who examined its operations during its exhibition at the State Capitol.

Mr. Joel Dayton, of Decorah, Winneshiek county, Iowa, is the proprietor of the patent for the States of Illinois, Michigan, Iowa and Nebraska, and sells the machines at the shop in Decorah, without the Elevator for $28; with the elevator for $35.

This Separator received the first premium of the Iowa State Agaicultural Society at its last Fair in Dubuque, September, 1863.

TABLE

Showing the population of the State of Iowa, by Counties, as returned by the State Census of January, 1863, and U. States Census for June, 1860.

Counties.	1863. No. of Males.	No. of Fem'ls	No. of Blacks.	Total.	No. entitled to vote	No. votes cast for Gov. 1863. Stone.	Tuttle	1860. Whites.	Free Colored.	Total.
Adair	467	433	....	900	188	119	60	984	....	984
Adams	830	795	13	1,638	326	197	93	1,533	....	1,533
Alamakee	6,728	6,733	4	13,465	2,471	997	1342	12,230	6	12,236
Appanoose	6,013	5,847	6	11,866	2,095	867	1131	11,920	13	11,933
Audubon	194	194	....	388	88	43	45	454	....	454
Benton	4,897	4,658	6	10,561	1,836	1024	656	8,501	1	8,502
Black Hawk	5,050	4,955	9	10,014	2,082	1137	432	8,230	14	8,244
Boone	2,218	2,389	....	4,607	873	341	457	4,231	....	4,231
Bremer	2,786	2,618	....	5,404	1,101	669	308	4,910	5	4,910
Buchanan	4,235	4,057	2	8,294	1,718	992	587	7,906	....	7,906
*Buena Vista	....	....	....	....	....	3	4	57	....	57
†Buncombe	....	....	....	....	....	....	....	....	....	....
Butler	2,142	2,000	....	4,142	944	495	245	3,723	1	3,724
Calhoun	92	78	....	170	39	14	26	147	....	147
Carroll	158	139	....	297	54	28	29	281	....	281
Cass	819	804	....	1,623	317	194	113	1,612	....	1,612
Cedar	6,687	6,574	13	13,274	2,657	1562	958	12,937	12	12,949
Cer. Gordo	510	497	....	1,007	215	158	24	940	....	940
Cherokee	10	5	....	15	5	6	1	58	....	58
Chickasaw	2,309	2,087	1	4,397	910	549	283	4,333	5	4,338
Clarke	2,804	2,883	6	5,693	1,065	665	286	5,427	....	5,427
*Clay	....	....	....	....	....	11	4	52	....	52
Clayton	10,862	10,368	5	21,275	3,997	2022	1704	20,702	25	20,728
Clinton	10,121	9,697	3	19,818	3,544	1909	1398	18,925	13	18,938
Crawford	247	209	....	456	94	50	35	383	....	383
Dallas	2,502	2,585	1	5,088	930	615	347	5,244	....	5,244
Davis	6,990	6,966	3	13,956	2,566	994	1331	13,763	1	13,763
Decatur	4,094	4,276	3	8,373	1,473	673	801	8,670	7	8,677
Delaware	5,930	5,736	1	11,667	2,302	1305	721	11,028	....	11,028
Des Moines	10,632	10,536	45	21,213	4,011	2070	1788	19,584	28	19,612
Dickinson	94	95	....	189	35	31	1	180	....	180
Dubuque	15,509	15,254	76	30,839	5,699	2064	3280	31,096	29	31,165
*Emmett	....	....	....	....	....	23	2	105	....	105
Fayette	6,427	6,310	2	12,739	2,434	1339	813	12,019	54	12,073
Floyd	2,057	1,961	....	4,018	900	568	206	3,746	....	3,746
Franklin	743	705	....	1,448	271	193	63	1,309	....	1,309
Fremont	2,445	2,330	3	4,778	948	519	396	5,069	5	5,074
Greene	709	707	....	1,416	241	131	102	1,374	....	1,374
Grundy	514	510	....	1,024	208	168	27	793	....	793
Guthrie	1,661	1,544	2	3,207	609	295	266	3,058	....	3,058
Hamilton	822	780	....	1,602	321	198	78	1,699	....	1,699
Hancock	128	112	....	240	52	27	19	179	....	179
Hardin	2,774	2,585	17	5,376	1,072	681	370	5,440	....	5,440
Harrison	1,872	1,791	....	3,663	717	332	319	3,622	1	3,623
Henry	8,204	8,470	106	1,6780	3,324	2036	880	18,676	24	18,760
Howard	1,778	1,604	....	3,382	690	413	244	3,167	1	3,168
Humboldt	211	183	....	394	92	51	30	332	....	332
*Ida	....	....	....	....	....	6	3	43	....	43

*Not reported in 1863. †Buncombe changed to Lyon.

Counties.	1863. No. of Males.	No. of Fem'ls	No. of Blacks.	Total.	No. entitled to vote	No. votes cast for Gov. 1863. Stone.	Tuttle	1860. Whites.	Free Colored.	Total.
Iowa	4,335	4,208	1	8,544	1,669	764	742	8,029	....	8,029
Jackson	9,617	9,535	6	19,158	3,502	1598	1726	18,487	7	18,494
Jasper	5,451	5,147	29	10,627	2,020	1120	688	9,886	1	9,887
Jefferson	7,323	7,316	10	14,649	2,659	1378	1199	15,037	....	15,037
Johnson	8,459	8,718	7	17,184	3,172	1546	1569	17,534	38	17,572
Jones	6,927	6,563	5	13,495	2,619	1427	1002	13,298	7	13,305
Keokuk	6,879	6,531	2	13,412	2,456	1215	1098	13,284	....	13,284
Kossuth	184	181	....	365	71	54	15	416	....	416
Lee	14,865	13,196	462	28,523	4,999	2473	2489	28,985	247	29,232
Linn	9,569	9,124	7	18,700	3,714	2070	1147	18,940	10	18,950
Louisa	5,375	5,264	34	10,673	2,140	1237	631	10,276	94	10,370
Lucas	3,160	3,097	....	6,257	1,171	580	481	5,765	1	5,766
†Lyon	....	....	....	....	....	....	....	....	....	....
Madison	3,972	3,962	....	7,934	1,477	777	624	7,338	....	7,338
Mahaska	8,106	8,136	7	16,249	3,112	1733	1167	14,800	16	14,816
Marion	8,720	8,574	24	17,318	3,247	1365	1534	16,781	34	16,815
Marshall	3,923	3,598	29	7,450	1,570	964	492	6,015	....	6,015
Mills	3,216	3,067	4	6,287	1,235	407	284	4,462	18	4,480
Mitchell	1,766	1,609	....	3,375	718	574	169	3,409	....	3,409
Monona	498	426	7	931	226	99	95	832	....	832
Monroe	4,636	4,684	2	9,322	1,683	806	790	8,609	2	8,611
M'tgomery	603	615	....	1,218	248	141	90	1,256	....	1,256
Muscatine	8,508	8,381	100	16,989	4,695	1721	1354	16,339	105	16,444
*O'Brien	....	....	....	....	....	4	4	8	....	8
†Osceola	....	....	....	....	....	....	....	....	....	....
Page	2,363	2,294	5	4,622	922	434	241	4,418	1	4,419
Palo Alto	73	69	....	142	27	....	29	133	....	133
Plymouth	50	43	....	93	23	22	5	140	8	148
Pocahontas	58	64	....	122	28	17	12	103	....	103
Polk	6,423	6,502	31	12,956	2,601	1420	1243	11,612	13	11,625
Pottawat'mie	2,393	2,335	9	4,737	974	463	317	4,953	9	4,962
Poweshiek	3,264	3,096	10	6,370	1,321	722	526	5,670	....	5,670
Ringgold	1,531	1,507	1	3,039	574	353	114	2,923	....	2,923
Sac	126	108	....	234	52	21	19	246	....	246
Scott	13,150	13,127	50	26,327	4,742	2613	1315	25,921	39	25,960
Shelby	430	398	....	828	168	80	82	10	....	10
Sioux	....	....	....	....	....	....	4	817	1	818
Story	2,217	2,151	....	4,368	803	453	342	4,052	....	4,052
Tama	3,600	3,400	27	7,027	1,852	818	418	5,285	....	5,285
Taylor	1,984	1,771	2	3,757	741	381	170	3,959	....	3,589
Union	1,216	1,204	....	2,420	477	213	187	2,012	....	2,012
Van Buren	7,897	7,942	....	15,839	3,111	1619	1272	17,079	4	17,083
Wapello	8,304	8,371	54	16,729	3,435	1401	1464	14,480	38	14,518
Warren	5,448	5,478	6	10,932	2,079	1122	758	10,208	14	10,282
Washington	7,599	7,372	32	15,003	2,884	1587	1107	14,220	13	14,233
Wayne	3,266	3,255	1	6,522	1,167	500	575	6,400	11	6,411
Webster	1,447	1,410	1	2,858	559	299	264	2,500	4	2,504
Winnebago	97	107	....	204	44	29	18	168	....	168
Win'eshiek	7,917	7,497	7	15,421	2,552	1400	863	13,942	....	13,942
Woodbury	575	531	....	1,106	231	122	107	1,116	3	1,119
Worth	457	438	....	895	168	120	35	756	....	756
Wright	358	335	....	693	91	75	43	653	....	653
Total	354,661	346,181	1,320	702,162	135,068	69121	44948	673,925	1023	674,948

*Not reported in 1863. †Unorganized.

RAILROADS IN IOWA, FROM OFFICIAL SOURCES.

Burlington & Missouri River Railroad Company, have completed and are now running from Burlington, in Des Moines county, to Ottumwa, in Wapello county, a distance of *seventy-five miles.*

The Mississippi & Missouri River Railroad is completed and in running order from Davenport, in Scott county, to Grinnell, in Poweshiek county, a distance of *one hundred and twenty-five miles;* and from Milton Junction, in Muscatine county, to Washington, in Washington county, a distance of *fifty-one miles.*

The Dubuque & Sioux City Railroad, (formerly Dubuque & Pacific Railroad,) is completed and in running order from Dubuque to Cedar Falls, in Black Hawk county, a distance of *one hundred miles*, and is under contract and grading nearly completed to Iowa Falls, in Hardin county, a distance of forty-five miles further.

The Keokuk, Fort Des Moines & Minnesota Railroad is completed and in running order from Keokuk, in Lee county, to Eddyville, in Wapello county, a distance of *ninety-two miles.*

The Chicago, Iowa & Nebraska Railroad is completed and in running order from Clinton, in Clinton county, to Cedar Rapids, in Linn county, a distance of *eighty-two miles.*

The Cedar Rapids & Missouri River Railroad—a continuation of the Chicago, Iowa & Nebraska Railroad—is completed and in running order to a point west of Cedar Rapids *ninety-two miles*, and will be completed to the Des Moines river, at Boonsboro, one hundred and twenty-three miles from Cedar Rapids, by the first of November, 1864.

The Dubuque, Marion & Western Railroad is completed and in running order from Farley, in Dubuque county, to within eight miles of Marion, Linn county, a distance of *fifty-five miles*, and is graded and in process of construction from Springville to Cedar Rapids, a distance of fourteen miles, to be completed in a few months. Farley is the point where said Road joins with the Dubuque & Sioux City Railroad.

The Keokuk, Mount Pleasant & Muscatine Railroad is completed and in running order from Keokuk, Lee county, to Fort Madison, in Lee county, a distance of *twenty-five miles.*

The McGregor Western Railroad, at McGregor, on the Mississippi river, runs westwardly forty miles; one branch is intended to go north-west, and cross the State line in Mitchell county; the other branch in a south-westerly direction to the Missouri river, between Sargeant's Bluff and north line of State. It is finished and cars running on it about *eight* miles, and expected to be completed some 32 miles further this year.

Total length of Railroads in Iowa, completed and in running order, *seven hundred and five miles.*

CORRECTIONS.

On page 24, last line of A. B Lyman's statement, for "15 and 44," read "15.44."

On page 28, second and third lines from top, it should read "30,000,000 *acres, or over six-sevenths of the whole amount* there are assessed," &c.

On page 31, the figures 3,548 in the table under head of "*Oats—acres sown*," opposite the year 1863, *should not be there*, as we could not learn the number of acres in oats that year, but the quantity was doubtless about the same as in 1862.

On page 36, in table of *Oats*, &c., the number of acres in 1849 should be "47,635," instead of 56,828—and the number of acres in 1859 should be "183,740," instead of 226,140.

On page 49, in table of yield of *Irish Potatoes* for the year 1862, read "2,362,918 bushels," instead of 2,262,918 bushels.

On page 60, fifteenth line from bottom, for "leave for her share of the consumption," read *require for her share of the production.*

On page 61, twelfth line from bottom, tor "nature," read *value.*

APPENDIX.

Since the previous report was made to the Legislature, a Committee from both Houses of the General Assembly, consisting of Hon. B. F. Gue, on the part of the Senate, and Hon. Chas. Paulk, and Hon. John Russell, on the part of the House of Representatives, were appointed to visit the College Farm, and report thereon to the Legislature. As it contains information in regard to its location, soils, timber, &c., not embraced in any report from the Trustees of the College, it is deemed a matter of sufficient interest to republish in this report.

REPORT OF COMMITTEE TO GENERAL ASSEMBLY.

The undersigned, members of the Joint Committee appointed to visit the College Farm, and examine into the condition of affairs connected with the Institution, and estimate the cost of a suitable building, have performed that duty, and respectfully submit the following report:

We visited the Farm on the 27th of January, and found the

LOCATION

As follows: On a direct line twenty-nine miles due north of the City of Des Moines, in Story county; nine miles west of Nevada, the county seat; and on the direct public road leading from Nevada to Boonsboro. The Farm lies two and one-fourth miles west of Skunk river, the centre of the Farm, near where the buildings are erected, being a little more than three miles from the nearest point on Skunk river. The west line of the Farm is two and one-half miles east of the Boone county line. The Cedar Rapids & Missouri Railroad is now being built directly through the Farm, coming into it on the east side, about ninety rods north of the south line, and running diagonally through it, bearing north-west, and leaving it on the north line within about thirty rods of the north-west corner —dividing the Farm so as to leave about 160 acres on the north, and about 488 acres on the south side of the Railroad. The Farm is well supplied with

WATER AND TIMBER.

Squaw Creek, a fine stream, comes into the Farm on the north, meanders through near the east line, the whole length affording an inexhaustible supply of pure water for stock. The banks of the stream are low, and densely covered with heavy timber on both sides. The timber is principally black walnut, oak, elm, white maple, linn, cottonwood, ash, hickory, and numerous other valuable varieties. We were informed by the Trustees, that upon a careful examination, they have found upwards of *fifty* different varieties of timber, bushes and shrubbery growing on the Farm; and from the examination we were able to make, we are satisfied that their estimate is not too high. There is another fine stream of pure water called "Clear Creek," running through the north-west corner of the Farm, the banks of which are high and broken bluffs, covered with a large and magnificent growth of white oak, black walnut, red oak, white walnut and sugar maple timber. From the best information we could obtain from our own estimates and other reliable sources, we are satisfied that there is on the College Farm not less than one hundred and fifty acres of valuable heavy timber, embracing nearly every variety growing natural in the State. Near the centre of the Farm, and about twenty rods east of the barn-yard, are several fine springs, affording a good supply of stock water, which, we were informed by old settlers in the vicinity, never froze over. Near the south-west corner of the Farm is a fine pond of water, which affords a good supply ten months out of the twelve, in the dryest seasons.

After a careful examination, we are enabled to present to the General Assembly the following

DESCRIPTION OF THE FARM.

The Farm contains six hundred and forty-eight acres, lying in a body, being about 400 rods long from east to west, and about 259 rods wide from north to south. After deducting the one hundred and fifty acres of timber above described, there remain 498 acres of prairie land suitable for grass and grain. There is probably not far from 180 acres of low bottom land, about one hundred of which is covered with timber; the remainder is about equally divided between wet and dry bottom.

The low land in the timber is a rich, deep, black sandy loam, with clay subsoil, but not inclined to hold water on the surface. Next west adjoining the timber is a fine, smooth, level tract of low land, remarkably well adapted for grass, but could, by a judicious system of drainage, be converted into the most productive corn land, not excelled in the west. Beyond this, to the north-west, is a large tract known in this State as second bottom land, being level, dry and very rich, and remarkably productive for almost every crop grown in this latitude. The soil is a mixture of black sand, fine

gravel, and rich black alluvion, and prairie soil proper; comprising perhaps the most desirable soil known to the agriculturalist. A part of this land was sown with wheat last season, and produced, as we are informed, about 20 bushels to the acre, of *first quality*, as we ascertained by examination. West of this is a large tract of level prairie, the soil being dry, slightly intermixed with fine gravel in places, with clay subsoil, being a fair representative of the prevailing prairie soil in the State. On the north-west corner of the Farm, is a tract of perhaps 40 acres of clay soil, most of which is covered with a heavy growth of oak, walnut and hickory timber. Though called clay soil, this land is a fair specimen of what is known in this State as "barrens" and "timber land." The soil is a mixture of prairie and clay, with heavy clay subsoil, and is considered the best wheat and fruit land in the western States. On the south side of the Farm is about 90 acres of high rolling prairie, intermixed with gravel, and well adapted for almost any grain crop raised in the west, being warm and dry, the ravines which intersect it carrying off all surplus water in the wettest seasons. The gravel contained in the soil is mostly on the surface, and is turned under by the first plowing—nearly disappearing after cultivation. We found fine sand and gravel banks on the Farm, furnishing an inexhaustible supply for building purposes and for grading roads, walks and yards.

There is also on the Farm good clay for brick making, convenient to where the College will probably be erected.

THE IMPROVEMENTS

Consist of a good, substantial brick farm house, with a basement of stone, making a cellar under the whole building. The house is nearly completed, the mortar being mixed ready for plastering the inside walls and partitions in the Spring; and when finished, will cost about three thousand dollars. The bricks were manufactured on the farm. There is also a good barn on the place, well finished and painted, of good highth, and is 42 feet by 60 in size, capable of providing storage room for the grain, and shelter for the necessary teams and stock connected with the farm. There is a good stone basement under the barn, and a large yard inclosed by a substantial fence.

A great portion of the material and work used in the erection of these buildings, was furnished in payment of voluntary subscriptions, by citizens in the vicinity.

There is about 220 acres of the farm inclosed by a substantial fence, a part of which is built of boards and posts, five boards high, and the remainder of rails, staked and ridered, eight rails high. The fences are built of good material, and are put up in a very substantial manner. Of the land inclosed, about 148 acres are under cultivation, and had crops on, the past season.

There is a fine young orchard of about 400 thrifty trees, near the house, inclosed by a good fence, which has protected it from damage by cattle; and this little experiment has satisfied the people in the vicinity that the prevalent opinion that fruit cannot be raised upon our *open prairies* is entirely erroneous. They witnessed fine apples growing upon many of these trees which had been planted out but *three years* before, on the *level, open prairie*. They see that to be successful requires only ordinary care: such as they would bestow upon a corn crop, and they are profiting by this demonstration placed before their eyes, as we observed that nearly every farmer in the vicinity has begun to plant an orchard. These trees on the farm were donated to the Trustees by Mr. Smith, the well known Nurseryman of Des Moines.

A well has been dug near the house, affording a good supply of pure water, at a depth of about 30 feet.

About 75 grape-vines have been planted near the orchard, of several different varieties, among which are the Concord, Clinton, Isabella and Catawba. They appeared to flourish well, making a fine growth and producing some fruit.

BUILDING MATERIAL

for the erection of a College can be found in abundance on the farm and in the immediate vicinity. All of the necessary timber for frame-work can be taken from the farm without injury to the place. The necessary wood to burn the brick can be procured from down timber which is fast going to waste, and the best kind of clay and sand for the manufacture of the brick, are found in abundance on the farm. Stone for the basement can be had within three and one-half miles, and lime within six miles of the place. Pine lumber and shingles can be obtained by means of the railroad, which is being now built directly through the farm.

There are several saw-mills in the immediate vicinity of the timber lands, both steam and water-mills, capable of supplying any reasonable demand for lumber.

THE LANDS DONATED IN STORY COUNTY

lie on an average within two miles of the College Farm, and within one and one-half miles of the railroad. They consist of two 80-acre tracts, five of forty acres, and four of 20 acres each, of good prairie land; three 10-acre lots of timber, and one lot of 32 acres of timber: making 440 acres of prairie and 62 acres of timber. There are also 200 acres of land in Boone county, consisting of five lots, varying in size from 20 to 80 acres each, and lying on an average within two and one-half miles of the line of railroad, and within about seven miles of the farm. The lands thus donated to the College amount to 640 acres of prairie, estimated to be worth $4.00 per acre, making $2,560. The timber lands, 62 acres, are estimated to be worth $14.00 per acre, making $868—total, $3,428. There is also one acre of land, donated to the farm, and within one mile of it, containing a good stone quarry, besides about 20 lots in New Philadelphia, a new town on the line of the railroad, and about two miles from the farm, which will probably be the nearest railroad station.

Sections 9 and 10 of the organic act providing for the purchase of the College Farm, require that the Trustees shall purchase suitable lands, not less than 640 acres, for the use of the College and Experimental Farm; and that they shall take into consideration the price, location, *quality* and *variety* of soil, advantages of water, timber, stone, &c.

Your committee, after a thorough examination, are of the opinion that it would have been difficult for the Trustees to have made a selection more fully complying with the requirements of the law, than the one purchased. It has upon it at least six different varieties of soil, representing the prevailing kinds in the State; it has more than 50 varieties of timber, bushes and shrubs, and running water, spring and well water in abundance; a plenty of gravel, sand, stone, and material for brick; high dry land, level dry land, rolling clay, second bottom, sloughs, flat wet bottom, and timber bottom, besides the genuine prairie land.

We know of no other farm of the size in the State combining so many leading characteristics of Iowa land, and though we went to the farm with some feelings of prejudice against the location, we came away fully impressed with the belief that it answers the requirements of the law, as completely as any selection that could have been made. We are satisfied that the main object had in view by the framers of the organic law was, that the Experimental Farm should combine as many leading characteristics of the lands of our State as possible to be found in one farm, that all of the different varieties might be thoroughly tested, with the various grains and grasses, vegetables and fruits, and the final results might add to the experimental knowledge of the cultivators of the soil.

[As the information contained in the remainder of the Report, giving a history of the College and Farm, is much of it embraced in the report on the College, in the first part of the report of the Secretary to the Legislature, it is omitted here.]

FARMERS' CLUBS.

Having for their object discussions on Agricultural topics, and eliciting the results of the experience of its members in farming, rearing stock, &c., are beginning to be appreciated more and more every year. These clubs have long been in existence in the eastern States, and here and there in the western States, for some years. The beneficial results growing out of such organizations where they are well conducted and regularly attended, are not properly appreciated by our farmers; if they were they would as soon think of dispensing with their schools, as fail to enjoy the advantages of these clubs. Who that reads the discussions of the Farmers' Club of the American Institute, as published in the New York Tribune, does so without profit? Some of the advantages of these clubs were set forth in a circular letter from this office in November, 1860, and distributed in every county in the State. It resulted in the formation of about one hundred clubs. As frequent applications are made to this office for a plan to organize and manage them, a republication of that letter in reference to clubs has been requested.

The following advantages, among many others, of Farmer's neighborhood clubs, may be enumerated:

1st—By frequently meeting together, it promotes neighborhood sociability, and serves to unite all its members for mutual protection in *all matters* pertaining to their common interests. In union there is wisdom as well as strength. Divided in interest for want of a common understanding, our farmers are more apt to be imposed upon in every way, than almost any other class of community.

2d—A comparison of experience in regard to farming operations will lead to the adoption of the best system.

3d—In regard to experiments to decide doubts or to obtain further information for improvement, by each member, testing a different mode of cultivation, feeding stock, &c., results will be obtained in one season, which would require years to accomplish, if pursued by one member alone.

4th—By uniting their means valuable and expensive animals may be purchased and used in common by the members which could not be had otherwise; also, for the purchase of expensive farming implements and machinery which could be used by all; also, for the introduction of seeds, &c., from a long distance, which it may be desirable to introduce for trial.

5th—A valuable agricultural library, composed of books and papers, could thus be obtained for the use of the club, at an expense of not over a dollar a year to each member.

6th—By the annual exhibition by each member of the products of the farm or of the household, accompanied with the details of the mode of production or manufacture, much valuable information would be elicited.

7th—The annual deposit of all such products, especially of seeds, properly labelled, with the name of the variety, when grown, time of ripening, product per acre, the name of the party producing it, &c., would be valuable for comparison with other specimens of the same and other varieties, as well as with those produced in future years. Improvements, if any, could thus be satisfactorily ascertained from year to year. [Seeds should be preserved in glass bottles, and all deposited with the Secretary.]

8th—No other organization has the power to secure so hearty, healthy, lively, and profitable interest in all matters pertaining to husbandry. They are the props of the County Agricultural Societies, and where they do not exist and flourish, County Societies and all other Agricultural organizations linger, and prove unsatisfactory.

The places for the meetings of these Clubs, I presume, would most generally be in the district school houses. As there should be, in many instances, more than one Club in each school district, the meetings might, in such case, interfere. In this event, the dwellings of the members could very appropriately, and I have no doubt more profitably, be used alternately. I say more profitably, because in that case the wives and daughters of the members could more conveniently participate in these meetings, and thus extend that neighborhood sociability so desirable in all communities. If they do not feel interested in the topics of the Club, there are many matters connected with household duties which they might discuss with profit to each other. If the husband takes pride in producing the best, his wife and daughter should take a like pride in preparing it for the table in the most agreeable economical and wholesome dishes. *Many a family jar would be avoided if the food was prepared with reference to its more easy digestion.* There is as much to be learned by our women (I regret to say) in this regard, as by our farmers in agriculture, and they should not hesitate a moment, but consider it a solemn duty, to embrace every opportunity which may tend to perfect themselves in *their* domestic institutions. This is one of *woman's rights* which is sadly neglected by many of them, and one which we poor men, who are so dependent upon them for most of our comforts in this world, care not how soon is more generally assumed.

Farmers' Clubs which are properly organized, and sustained by regular weekly or monthly meetings, give the best evidence that sufficient interest exists therein on agricultural matters to give me confidence that whatever may be entrusted to them from this office will receive all the attention required—that satisfactory experiments will be made therewith and intelligent reports thereon returned. *Wherever I find such Clubs they may rest assured of receiving from this office a large share of every kind of seed, plant, &c., which it may have to distribute—and I will do all in my power to procure them contributions of books, &c., for their libraries, from all the sources known to me.*

The attention of managers of county agricultural societies is respectfuly directed to the organization and encouragement of *Farmers' Clubs* throughout their several districts, as being one of the best means of promoting the interests of such societies. The societies of Floyd and Mitchell counties appointed one of their several boards to visit every neighborhood in these counties, with the view of organizing such Clubs. I commend their example to every county agricultural society in the State.

CONSTITUTION OR FORM OF ORGANIZATION FOR FARMERS' CLUBS.

To facilitate the organization of Farmers' Clubs, the following simple constitution (if it can be dignified by that name) is offered for the consideration of those about forming them. In the starting some such form is perhaps best, but the fewer and more simple the laws the better. The Chairman and Secretary are the only important officers generally, and the latter may be treasurer also if the funds are no larger than is usually the case.

Article 1st.—This club—styled the ——— Farmers' Club—is established for the collection and dissemination of agricultural information among its members.

Article 2d.—The officers shall be, a President, Secretary and Treasurer, and an Executive Committee consisting of three persons. The President shall be the member at whose house the Club meets, or may be elected at each regular meeting of the club. The Secretary, Treasurer and Executive Committee shall be elected annually by ballot, and all officers continue in office until a new election is made.

Article 3d.—New members shall be elected by a two-thirds vote, and admitted by the payment of ———.

Article 4th.—The meetings of the Club shall be held (weekly, semi-monthly or monthly,) at such place as may be designated by the Executive Committee, who shall also propose the order of business, subjects for discussion &c., unless the Club otherwise directs.

Rule.—No member may speak more than ten minutes at once, nor more than fifteen minutes in all, nor more than three times upon any one subject, except by permission of the Club.

This is enough—all that is needed; the Executive Committee have the power to vary the scope of the operations of the Club as may be deemed expedient, and have, in fact, with the Secretary, the whole management. This is better than to throw too much of a burden upon him alone. There should be accurate minutes kept of the Club in a book for that purpose, and the results of experiments by individuals or under the advice of the Club, and any other matter of importance in regard to agriculture elicited in the discussions, should be recorded with especial care and sent to the nearest news or agricultural paper for publication.

If Iowa had but one good Farmers' Club in every organized township in the State, this fact, if known to those looking to the West for their future homes, would impress them so favorably in regard to our standard as an agricultural people, that they would hasten to find a location under the bright rays emanating from such organizations. I have abundance of testimony from farmers at home and abroad to convince the most skeptical that they *pay*, socially, intellectually and pecuniarily, and as the long winter evenings have commenced, permit me to call your attention to the following extracts, principally from the *Country Gentleman*, written by farmers, that they may be read at your first meeting, and perhaps serve to instruct you on some important points which I have not touched.

* * * * * * * * * * * * * *

"But there is one beneficial operation of Clubs and Societies among farmers, which, if I should judge from my own feelings and those of a few with whom I have conversed upon the subject, I should place foremost and chief among their advantages. I refer to their tendency to induce the members to read and study records of facts, opinions, and experiences, and to observe what is passing around them *with greater care*. They induce some, also, to put the opinions or theories advanced by themselves or others, to the test of experiment. This stimulating and sharpening influence upon the observing, reasoning and active powers of the mind, I am disposed to rank as *the chief* among the several benefits which the discussions and interchanges of thought and experience among the members of these associations have a tendency to produce. Pride, or a dread of appearing to disadvantage, will induce some to observe, to experiment, to read, and to reflect; while others will be influenced to the same course from more dignified and generous motives. In these and other ways the mind is roused to activity, and this increased mental activity leads certainly to improvement, both within and without, both of the power to think and judge, and plan judiciously, and of the mode of carrying on the various operations of the farm."

* * * * * * * * * * * * * *

"Wherever "Farmers' Clubs" have been formed in prudence and energetically sustained, grand results have followed. Their history has been a brilliant one in many a rural district.

Why then are they not more universally established? Not because they lack in utility, for their benefits develop themselves clearly. Not because farmers are not capable of getting up and sustaining them. There is intelligence enough in every farmers' neighborhood to start them with interest, and the longer they exist, the more interest and talent will be elicited, for they lead to close thought, diligent study and fixed observation. Positive indifference and lack of energy must be the causes of their failure.

Men of all other professions associate and meet for the advancement of their calling, and why shall not the farmers, who should stand first of all, inasmuch as it was the first employment assigned to man, and inasmuch as it feeds and clothes all?

Why do they not assume their position, unite and regulate their plans accordingly?"

* * * * * * * * * * * * * *

However a club is constituted, it should be as simple in its organization as possible. The meetings should be as free from parliamentary restraint as possible. The punctilious palaver of a debating society is ridiculous when we want to get a man's practical notions, and think less of his grammar or rhetoric than of what he means. The chief duties of the president are, to prevent two people from speaking at once, to lead back discussion to the topic under consideration, and to call out the backward, that there may be no waiting for somebody to speak, which distracts attention and makes any meeting stiff and disagreeable.

Farmers, when they thus meet should have a free and easy, pleasant talk on agricultural matters, and when this is over, a chat about the weather, or the latest news, over a cup of tea or a plate of walnuts and apples."

REPORT.

The undersigned members of the Joint Committee, appointed to visit the College Farm and examine into the condition of affairs connected with the Institution, and estimate the cost of a suitable building, have performed that duty and respectfully submit the following report:

We visited the Farm on the 27th of January, and found the

LOCATION

As follows: On a direct line twenty-nine miles due north of the City of Des Moines, in Story county; nine miles west of Nevada, the county seat; and on the direct public road leading from Nevada to Boonsboro. The Farm lies two and one-fourth miles west of Skunk River, the centre of the Farm, near where the buildings are erected, being a little more than three miles from the nearest point on Skunk River. The west line of the Farm is two and one-half miles east of the Boone county line. The Cedar Rapids & Missouri Railroad is now being built directly through the Farm, coming into it on the east side, about ninety rods north of the south line, and running diagonally through it, bearing north-west, and leaving it on the north line within about thirty rods of the north-west corner—dividing the Farm so as to leave about 160 acres on the north and about 488 acres on the south side of the Railroad. The Farm is well supplied with

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