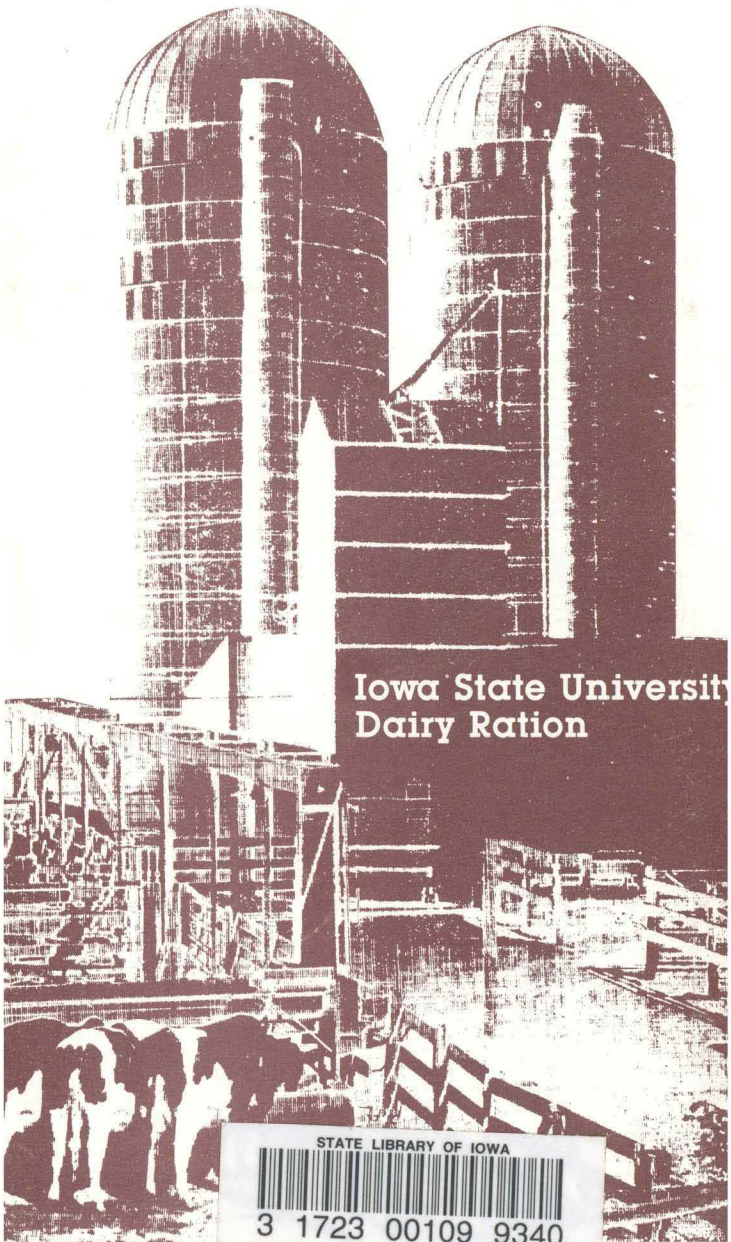


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Iowa State University Dairy Ration

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AGS-SD1 | April 1985

ISU Dairy Ration Order Form: MSDC, 108 Computation Center, Iowa State University, Ames, Iowa 50011

Please send _____ copies of ISU Dairy Ration \times \$75.00 per copy = \$ _____

Please indicate type of computer:

Apple II _____ Apple III _____ IBM-PC/XT/AT _____ MS-DOS Generic _____

Name _____ Address _____

City _____ State _____ Zip _____

Phone (_____) _____ - _____

Please make checks payable to: Iowa State University Research Foundation

The various sections do the following:

0. **Quit—done with ISU Dairy Ration**—will exit from the program causing all previous entries to be erased from the computer's memory.
1. **Input names and addresses**—used for the name, address, and phone number of the person for whom the ration is formulated. It also allows for the name, address, and phone number of a second person who is to receive a copy of the report.
2. **Input cow data**—used to enter number of cows in the herd or string and the body weight, milk production, fat test, and age of the cows for which the ration is to be formulated.
3. **Select Feeds to Use**—used to select a maximum of 10 feeds from the feed library. Also used to enter the price and amount fed of each feed.
4. **Feed library**—used to print the feed library data stored on the computer disk, to add a new feed to the feed library, to remove a feed from the feed library, or to enter the feedstuffs used in a grain mix that is to be included in the feed library.
5. **Edit/change data**—used to change or correct the entries made in sections 1, 2, or 3 above. It can also be used to modify the NRC nutrient requirements of the cow, or to delete a feed selected in section 3.
6. **Analyze/balance—Ration/grain mix**—used to analyze a ration, analyze a grain mix, balance a new ration, balance a new grain mix, or create a least-cost ration.
7. **Print records**—used to print out the nutrient contents of the feeds used, the NRC requirements of the animals for which the ration was calculated, mixing schedules for a grain mix or total mixed ration, and grain feeding rates and protein topdressing feeding schedules.

ISU Dairy Ration is a ration analysis and formulation program that can be used to analyze the present ration or grain mix being fed, or formulate a new ration or grain mix. This program can also be used to formulate least-cost rations, grain mix schedules, total mixed ration feeding schedules, and grain and protein topdressing feeding schedules.

Computer Requirements

General

ISU Dairy Ration is written in PASCAL and requires a minimum of 64 K RAM. The availability of an 80-column printer is recommended, but not required.

Specific

Apple II (II, II+, IIe and IIc) with an 80-column card and two disk drives. Apple III with two disk drives. IBM-PC (or compatible) with one disk drive.

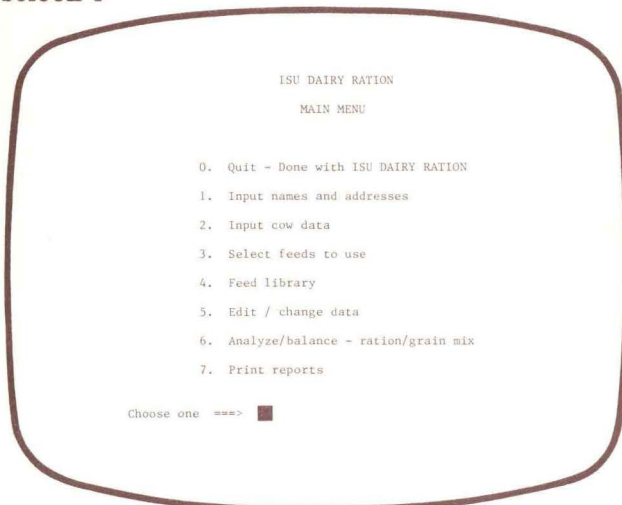
Cost

ISU Dairy Ration is available for the above computers for \$75.00. The purchase price includes the main program, the feed library, and other files needed to run the **ISU Dairy Ration** on your computer.

Program Organization

ISU Dairy Ration is a menu-driven program with limited instructions on the screen. The main menu (screen 1) is the central, starting point for all activities. Sections 4 through 7 also have sub-menus for additional specific activities.

Screen 1



Sample Output

Analyze current ration—this selection allows you to analyze (evaluate) your present ration to find out if you are underfeeding or overfeeding any nutrients. Screen 2 tells which major nutrient (protein, energy, calcium, or phosphorus) is the most limiting nutrient, while screen 3 allows comparison of actual amounts provided by the ration with the daily requirements of the cow.

Screen 2

ISU DAIRY RATION	
Nutrient Summary	
Nutrient	Pounds milk supported
Protein	60.0
Energy	60.9
Calcium	60.9
Phosphorus	60.0

Press <return> to continue ■

Screen 3

ISU DAIRY RATION			
RATION ANALYSIS			
Nutrient Name		Daily Requirement	Current Ration
max. d m i	lbs	39.1	38.8
crude protein	lbs	6.0	6.0
a. d. fiber	lbs	8.2	8.2
ne - l	mcal	28.59	28.86
calcium	gm	91.9	93.0
phosphorus	gm	65.3	65.3
magnesium	gm	35.5	39.6
potassium	gm	141.9	221.5
sulfur	gm	35.5	38.6
salt	oz	3.1	3.1

Press <return> to continue ■

Formulate new ration—a new ration is formulated that will supply the minimum amounts of crude protein, net energy-lactation, calcium, phosphorus, and salt, and not exceed the maximum dry matter intake. The

program may adjust the level of forages, energy, or protein sources if more than one of each was entered, but will do so in the same ratio of dry matter pounds as was entered. The cost of the various feedstuffs is included but not considered in the calculations (screen 4).

Screen 4

ISU DAIRY RATION					
RATION SOLUTION					
FEED NAME	Pounds Dry Matter per Cow	Pounds As-Fed per Cow	Pounds As-Fed per Herd	Daily Cost per cow	Daily Cost per herd
alfalfa hay	9.98	11.1	1108.5	0.44	44.34
corn silage	9.98	30.2	3023.1	0.38	37.79
shelled corn	6.75	7.7	767.3	0.38	38.36
oats	6.75	7.6	758.6	0.91	91.04
soybean meal 44%	2.53	2.8	284.8	0.26	25.63
whole cottonseeds	2.53	2.8	275.5	0.50	49.59
dicalcium phosphate	0.10	0.1	10.2	0.02	1.53
limestone	0.00	0.0	0.0	0.00	0.00
magnesium oxide	0.00	0.0	0.0	0.00	0.00
trace mineral salt	0.20	0.2	21.4	0.01	1.29
	38.83	62.5	6249.4	2.90	289.57

Press < P > to print or <return> to continue ==> ■

Least-cost ration—least-cost ration formulations will consider up to 10 feeds based on the animals' estimated dry matter intake maximum and the animals' requirement for crude protein, acid detergent fiber, net energy-lactation, calcium, phosphorus, magnesium, and salt. The resulting output is in three sections: the first gives the solution on both an as-fed and a dry matter basis (screen 5); second is the shadow prices; and third is the slack and surplus prices.

Screen 5

ISU DAIRY RATION					
LEAST COST SOLUTION					
Feed Name	Pounds Dry Matter	Pounds As-Fed	Current Price	Lower Bound	Upper Bound
corn silage	25.6887	77.8	1.25	1.11	7.62
shelled corn	5.7565	6.5	5.00	-0.62	6.15
oats	0.0000	0.0	12.00	----	19.31
soybean meal 44%	6.5142	7.3	9.00	7.55	12.91
whole cottonseeds	0.5880	0.6	18.00	-147.36	24.84
dicalcium phosphate	0.1137	0.1	15.00	-168.28	37.81
limestone	0.2473	0.2	7.00	-7.69	42.76
magnesium oxide	0.0000	0.0	30.00	----	89.97
trace mineral salt	0.2037	0.2	6.00	----	40.76

Ration cost = \$ 2.122 / cow / day

press <return> to continue ■

Batch schedule for grain mix—this will give the pounds of each feedstuff needed to make a batch of grain of a specified weight on an as-fed basis (screen 6).

Screen 6

GRAIN MIX SCHEDULE	
Feed Name	Pounds per Batch
shelled corn	725
oats	716
soybean meal 44%	269
whole cottonseeds	260
dicalcium phosphate	10
trace mineral salt	20
	4000

Grain and protein topdressing schedule—a grain feeding schedule (screen 7) is provided for cows producing from 20 to 90 lb of milk daily. The additional pounds of protein topdress needed is indicated also.

Screen 7

GRAIN FEEDING SCHEDULE		
Pounds of Milk	Pounds of Grain	Pounds of soybean meal 44%
20.0	0	0
30.0	0	0
40.0	5	0
50.0	12	0
60.0	19	0
70.0	27	0
80.0	30	1
90.0	31	2

Mix Schedule for 'X' feedings/day—a mixing schedule is provided for mixing a complete mixed ration (total mixed ration) that is to be fed in "X" feedings per day. The first section (screen 8) gives the pounds of each feed and the cumulative pounds. The final section (screen 9) gives the pounds to feed if the batch size needs to be decreased by 2, 4, or 6 percent or increased by 2, 4, or 6 percent.

Screen 8

Daily Feeding Schedule		
for 2 Feedings per day		
Feed Name	Pounds of Feed	Total Pounds
alfalfa hay	554	3679
corn silage	1512	5191
shelled corn	384	5575
oats	379	5954
soybean meal 44%	142	6096
whole cottonseeds	138	6234
dicalcium phosphate	5	6239
trace mineral salt	11	6250

Screen 9

Daily Feeding Schedule								
for 2 Feedings per day								
Feed Name	-6%	-4%	-2%	0%	+2%	+4%	+6%	
alfalfa hay	!	!	!	!	!	!	!	
corn silage	!	!	!	!	!	!	!	
shelled corn	!	!	!	!	!	!	!	
oats	!	!	!	!	!	!	!	
soybean meal 44%	!	!	!	!	!	!	!	
whole cottonseeds	!	!	!	!	!	!	!	
dicalcium phosphate	!	!	!	!	!	!	!	
trace mineral salt	!	!	!	!	!	!	!	