

THE VISITOR

Devoted to the Interests of Agricultural Education in Minnesota Schools.

Vol. XX

FEBRUARY, 1933

No. 6

THE LONG-TIME PROGRAM OF FARM PRACTICE

School preparation is becoming increasingly essential in every field of human endeavor. This is especially true in agriculture. It is for this reason that high school instruction in agriculture is provided for those who are interested in the occupations of farming. Because agriculture is the dominant industry in Minnesota—and the indications are that it will continue to be so—we ought to be particularly interested in the “set-up” for teaching agriculture in this state.

The essential increment which is inherent in all aspects and angles of agricultural education is the “long time farm practice plan, or broader program of farm practice.” This represents putting into practice what the student has learned in the classroom and through the short-time projects. It consists of the introduction and the integration of improved practices on the home farm. It is our most effective instrument in “doing things,” getting real results, or making progress towards an improved agriculture and a happier rural life. It has been said, and rightly so, that “we have not really learned anything until that thing has found expression in our lives.” Putting into operation the long time program of farm practice is the outward expression of the objectives, mental attitudes, concepts, appreciations, knowledge, ideals, and skills that have become an integral part of the life of the boy who has studied agriculture. It is the crowning feature of Agricultural Education.

Now, more than ever before, is the time to think more seriously about a long time program of improved farm practice that will result in greater economic returns and will also be an asset to the aesthetic side of life. How shall we make such a program? What is it? How shall we begin?

That is essentially what we are getting at. Let us explain it by means of an illustration. On the following pages are given the description and original plan of a real 163-acre farm located in the Red River Valley of Minnesota. (This is my home farm and the long time program has been worked out in accordance with the plans set up in our Agricultural Education courses for teachers of agriculture

in Minnesota.*) It is an outline of the plan whereby this farm is to be gradually changed from an aimless “chance type” to a practical, scientific type of farming. It is not intended to be an ideal or model plan; it was made to fit the conditions and needs of a particular farm with its own peculiar problems. The writer hopes, however, that it might be of some value in guiding others who undertake the working out of a long time program for some other farm.

Original Plan and Situation (August, 1932)

Fields.—Figure 1 shows the arrangement of fields before the revised plan and long time program were worked out. The arrangement of pastures and fences as well as the proportions of different crops raised should be noted.

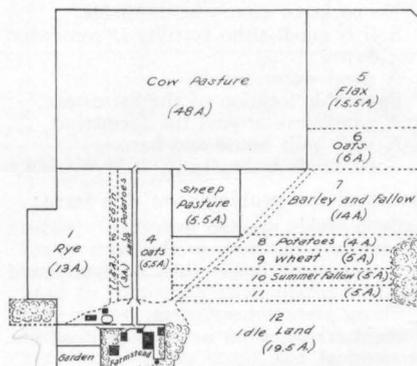


Fig. 1. Field arrangement the year before revised plan was adopted.

Crops.—The cash crops are rye, flax, wheat, and potatoes. Feed crops are oats, barley, and a little corn for fodder.

Livestock.—The inventory of livestock in August, 1932, was as follows:

Seven cows (only fair producers; untested)

Two heifers

Two heifer calves

* Editor's Note.—Mr. Strand graduated from the College of Agriculture June, 1932, having completed the Agricultural Education curriculum qualifying him for the Minnesota Standard Special Certificate for teachers of agriculture.

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Published monthly during the calendar year, except June, July, and August, by the Division of Agricultural Education, University of Minnesota, University Farm, St. Paul, Minn.

Entered as second class matter at the post-office at St. Paul, Minn., under the act of August 24, 1912.

Accepted for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized August 2, 1918.

THE STAFF

A. M. FIELD J. M. JACOBSEN V. E. NYLIN
A. M. FIELD, *Editor*

One "grade" Holstein bull calf
Forty sheep (21 ewes, one ram, and 18 lambs)
Fifty chickens (mostly White Leg-horns; low producers)
Forty-five turkeys
Two pigs
Four work horses
One colt (17 months old)

Some good points about the farm:

Practically all the land is cleared and tillable.
Natural drainage is fair.
No rocks or stones in the fields.
Soil is good, altho fertility is somewhat run down.
A good water supply.
Favorable location of the farmstead.
A windbreak around the farmstead.
A well built house and barn.
Good roads to market.

Some of the problems on this farm:

Crop yields are too low.
Livestock not very productive.
Cow pasture larger than necessary and not very productive.
Sheep pasture insufficient.
Field arrangement not well planned nor economical.
No definite crop rotation plan.
No scientific program for building and maintaining soil fertility.
Trouble with "blowing out" on field 12.
Necessity of buying hay stumpage outside of the farm.
Fences in poor condition; too many gates.
Some waste land around farm yard.
Weeds growing in vacant p'aces.
Night yard small and inadequate.
Garden in need of rejuvenation.
Chicken house shabby and a drawback to better poultry production.
Barn in need of rebracing.
Granary space and bins unsuited to best use.

Farm tool-and-repair shop not in good order or arrangement.

Much farm machinery in need of repairs. No machine shed.

Rubbish dumped behind granary should be hauled away.

Manure pile waiting to be hauled out and spread on fields.

The Revised Plan

Thus far our discussion has centered around the situation and problems on this farm before the improvement plan was adopted. Now we shall turn our attention to the new long time program that has been worked out. First, we must see what the objectives are; second, how these objectives are to be achieved; third, how transition is to be made from the old to the new plan, and finally, what advantages we can expect from the new program and why.

Objectives

1. Attain the following standards of achievement in yearly production:

Per dairy cow	300 lbs. butterfat
Per hen	160 eggs
Per ewe	8 lbs. wool; 1.5 lambs
Wheat, per acre	18 bushels
Flax, per acre	10 bushels
Barley, per acre	38 bushels
Oats, per acre	45 bushels
Potatoes, per a.	175 bushels

- Balance the livestock and the crops.
- Raise alfalfa for hay on the farm.
- Work out and follow a scientific crop rotation.
- Control weeds and diseases.
- Keep the farm business organization flexible enough to permit adjustments to best fit changing prices of farm products or other changes of either an economic or technical nature.
- Utilization and distribution of labor to best advantage throughout the year.
- Work out and follow a definite building improvement program, first repairing or building the smaller buildings or equipment, repainting the present buildings, etc.
- Repair farm machinery. Plan for necessary investment in new implements.
- Beautify the lawn and farmstead in general.
- Increase the net farm income.

How Objectives Are To Be Achieved:

- Rearrange fields for greater economy in work and production. Make best use of all land on the farm. (See Figure 2.)
- Organize the farm business on an enterprise basis:

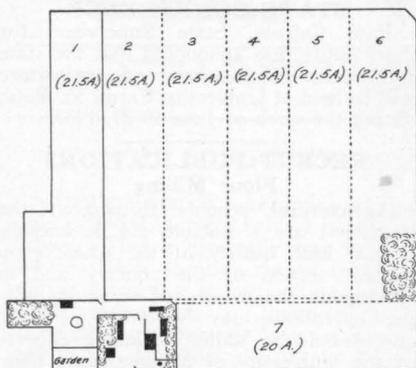


Fig. 2. Field arrangement with new crop rotation system.

A. Major enterprises	B. Contributory	C. Other
Dairy	Sweet clover pasture	Sheep
Flax	Alfalfa	Poultry
Wheat	Barley	Sweet clover seed
Potatoes	Corn	Garden
	Horses	Pigs

3. Follow a scientific crop rotation:

The farm will be divided into seven fields of approximately equal size. One field will always be kept in alfalfa; the six others will be used in the six-year rotation scheme, which runs as follows:

1st yr.—sweet clover pasture

2nd yr.—corn and potatoes

3rd yr.—flax

4th yr.—wheat

5th yr.—sweet clover seed and oats

6th yr.—barley

4. Increase crop yields by: Working land well and wisely before planting crops. Planting only pure, highest yielding, best adapted varieties. Treating seed potatoes before planting. Controlling weeds by scientific cultivation and other methods best adapted to the situation. Using sweet clover in the rotation for the purpose of maintaining soil fertility and controlling weeds. Wise utilization of farm manure. Conducting occasional fertilizer experiments on the farm to determine soil needs and best practices.

5. Building up a herd of eight to ten high producing Holstein cows: By securing and using a good sire. Test for production, and cull out the poor producers. Practice balanced feeding and careful management.

6. Maintain a flock of from 75 to 100 thrifty White Leghorn chickens. Practice strict sanitation, severe culling, wise feeding, and careful management. Buy

chicks every spring and sell old ones and poor layers before shutting up flock for the winter.

7. Maintain a flock of twenty-five good Hampshire ewes for breeding each year. Secure and use a high quality prolific ram. Dip sheep every year. Keep sheep barn clean and sanitary. Manage breeding so as to get early lambs and fatten them for early marketing. Cull herd every fall.

8. Flexibility in the farm business may be achieved by: Substituting some other crop for part of the potato acreage, varying the ratio of sweet clover for seed and oats, adding turkeys to the poultry flock, increasing or decreasing the size of the poultry flock by buying more or less chicks in the spring.

9. Observe and meditate on the procedures of the best farmers in the community. Study the effects of different practices on crops on the home farm. Read experiment station literature and keep posted on market conditions. Keep up to date.

10. Keep records of livestock and crop production; of income and expenses. Make use of records in determining future policies.

11. Building program: 1933—rebuild the chicken house and the sheep barn. 1934—repair and remodel the granary. Repaint all farm buildings. 1935—build combination machine shed and repair shop.

12. Produce honey on the farm. Begin beekeeping on a small scale in 1933 and expand later if profitable.

13. Raise a well planned home garden each year. Plant raspberries and strawberries in the garden in 1933.

14. Start a flower garden near the house in 1933. Replace present fence across front of farmstead by neat netting fence in 1934. Clean up rubbish and don't let it accumulate. Keep lawn neat and tidy. Plant a few more trees in corners and other thin parts of grove in 1935.

15. See that the plans are actually put into practice. Practice with alertness to changing conditions. Best judgment may dictate modifications, or minor changes from time to time.

Method of Transition

In order to understand the following discussion, it will be necessary to refer constantly to Figures 1 and 2. How is transition going to be made from the old to the new system? The plan for working into the new crop rotation scheme is explained below.

Providing for a permanent supply of alfalfa is an important consideration. Field 12 (Figure 1) has caused annoyance because the young crop has often been severely damaged by blowing sand during hard winds in the spring. Preparation was begun in the autumn of 1932 to establish alfalfa on this field. Winter rye was seeded last fall. In the spring, sweet clover seed will be broadcast in the field. Rye will be harvested in 1933 and a moderate application of well-rotted manure will be spread on the stubble. In 1934, the first crop of sweet clover will be cut for hay and the second will be plowed down. The next spring, alfalfa will be seeded with oats as a nurse crop. Oats will be harvested off the field in 1935 and in 1936 the first crop of alfalfa for hay is expected. This field (Field 7 in Figure 2) will be kept in alfalfa as much as possible. When it begins to run out, alfalfa will be seeded in some other field and Field 7 will be used as part of the regular rotation for a few years and then reseeded to alfalfa again. This is to avoid losses from the blowing out of crops by wind as has happened in the past.

Now for the proposed regular rotation on the other six fields. We must remember that the field arrangement on the farm is at present like that shown in Figure 1. Making the change to an arrangement like that in Figure 2 will involve breaking up the old pasture, moving fences, providing new pasture, and beginning properly the new rotation. The method here worked out provides for the definite rearrangement of the fields in 1934 and the establishment of the crop rotation, as it should be, in 1936.

In 1933: Wheat will be seeded in fields 5 and 6 (Fig. 1), flax in the old sheep pasture, potatoes and corn in field 7, oats in fields 8, 9, 10, and 11, and barley in fields 1, 2, 3, and 4. Sweet clover will be seeded with the barley. In the fall, the present pasture will be moved and a sheep-tight fence will be put up around what is field 1 and 2 (Fig. 2). This will be the pasture for 1934.

In 1934: Fields 3, 4, 5, and 6 (Fig. 2) will be laid out. The brush will be cleared out of the vacated pasture and this will be broken up. Flax will be seeded in the western halves of fields 3 and 4, barley in the eastern half of field 3, wheat in the eastern half of field 4, corn and potatoes in field 5, and oats in field 6. Sweet clover will be seeded with the grain in all of field 3.

In 1935: Field 3 will be sweet clover pasture; field 4, barley; field 5, oats;

field 6, corn and potatoes; field 1, flax; field 2, wheat. Sweet clover will be seeded with the barley in field 4.

In 1936: The crop rotation will now be under way with wheat in field 1, flax in field 2, corn and potatoes in field 3, sweet clover pasture in field 4, barley (with sweet clover) in field 5, sweet clover seed and oats in field 6.

Wire netting and two barb wires will be used for pasture fence. The new fence will be extended gradually along the outside of the farm as the pasture is rotated. Cedar fence-posts are to be used around the outside of the farm; steel posts, between the fields. The fence on one side of the pasture will be moved each fall so as to enclose the field to be used for pasture the next year and leave the vacated pasture unfenced. A lane, along field 7 will be constructed when fields 4, 5, and 6 are used for pasture.

Other improvements are also to be gradual, as indicated previously under, "How Objectives Are To Be Achieved." The building up of an improved dairy herd, a better flock of sheep, and a more productive poultry flock will necessarily take time. Beginnings are to be made at once and progress will be as rapid as finances, experience, and best judgment permit. So also in regard to building improvements, investments in new machinery, and other changes around the farmstead. Open-mindedness, care, and consideration of new technical improvements and economic changes are all essential to the achievement of best results.

Operation Under the New Plan

Under the old system, as illustrated in Figure 1, no definite crop rotation plan was followed. Figure 2 shows how the farm is organized so as to be best adapted to the new crop rotation plan. A well planned crop rotation is one of the most important parts of a good farm plan. It is often the key to the farm organization and operation and it is an important factor in farming success. Table 1 shows the land utilization and crop production before and after adoption of the new plan. Table 2 shows how feed crops are balanced with the livestock. Balancing the livestock and the feed is a significant aspect of planning the crop and livestock programs on this type of farm.

Fertility is to be maintained by judicious application of barnyard manure and the use of sweet clover as the legume of the rotation. Sweet clover grows very thriftily on this farm. Besides being important in maintaining fertility, it will

TABLE 1
Cropping System and Land Utilization before and after Reorganization

Use Made of Land	Before			After		
	Acresage	Yield*	Total production	Acresage	Yield†	Total production
Wheat	5.0	12 bu.	60 bu.	21.5	15 bu.	322 bu.
Flax	15.5	8 bu.	124 bu.	21.5	9 bu.	193 bu.
Barley	10.0	25 bu.	250 bu.	21.5	31 bu.	666 bu.
Oats	11.5	30 bu.	345 bu.	12.0	37 bu.	444 bu.
Potatoes	7.0	100 bu.	700 bu.	10.0	135 bu.	1,350 bu.
Corn fodder	1.5	2 tons	3 tons	11.5	2.5 tons	28 tons
Rye	13.0	14 bu.	182 bu.	0		
Sweet clover seed.....	0	0	0	9.5	5.0 bu.	47 bu.
Alfalfa	0	0	0	20.0	2 tons	40 tons
Pasture	53.5			21.5		
Woodlot	3.0			3.0		
Farmstead	7.0			11.0		
Fallow or idle.....	33.5			0		
Waste	2.5			0		
Total farm area.....	163.0			163.0		

* Approximate average yields under old system.

† Average of former yields and standards of achievement set in plan.

TABLE 2
Livestock and Their Feed Requirements, after Reorganization

Kind	No.	Amount of Feed Needed			
		Barley, bu.	Oats, bu.	Corn fodder, tons	Alfalfa, tons
Cows	10	125	188	18	18
Horses	4		480	2	7
Sheep	26	10	10	2	8
Chickens*	100	100	50		
Pigs†	2	25			
Other livestock		14	10	6	7
Amount needed for feed (total).....		274	738	28	40
Amount needed for seed		44	30		
Total amount needed		318	768	28	40
Amount raised		666	444	28	40
Surplus or shortage (buy or sell).....		+348	-324		

* Wheat screenings and some purchased feeds will also be used.

† Pigs will be fed skim milk and other farm by-products in addition to barley.

aid in control of weeds. Two fields will receive manure each year—the pasture will be manured in the fall just before it is plowed; the field from which wheat was harvested will be manured during the winter.

Four good horses will furnish the necessary farm power. Man labor will be distributed fairly well throughout the year under the new program.

Flexibility an Important Factor in Planning

Flexibility is an essential feature of a would-be successful farm program. In this new program an attempt has been made to get away from having too much "fixity" in the farm plans and practices and in the sources of income. The first provision for this lies in the organization of the crop rotation on a feed and cash crop basis. Opportunity is thus provided for marketing at least part of the crop either through livestock or di-

rectly, depending upon relative prices. Dairy cows will be fed on the basis of their production. Necessary feeds may have to be purchased or exchanged with cash crops, if the supply on hand runs short. Other possible methods of securing flexibility in crops are to vary the relative amounts of sweet clover seed and oats, or of corn and potatoes. Either sweet clover seed or oats may be left out entirely and substituted by others without disrupting consequences. Part of the field reserved for corn and potatoes may be planted to sugar beets. The "sweet clover for seed" may be cut for hay or plowed down for fertilizer. Barley and oats may easily be substituted for each other in the rotation. In securing flexibility in the livestock program, more or fewer chickens may be raised, or turkeys may be added. The number of ewes kept for breeding should be varied so as to best take advantage

of pasture or price conditions. Fall pasture will be provided by the young crop of sweet clover in the field that is to be next year's pasture and by bits of plants in the stubble of other fields. This will be supplemented by roughage as far as necessary.

* * * *

Now that we have presented the new plan and have discussed the long time program, we might logically be confronted with these two questions: "Is it going to be practical?" and "Is it going to pay?" We cannot definitely answer these questions, the reason being that this revised system has not actually been tried out as yet on this farm. We do not have the facts nor proof that one would have after a plan has been given a fair and substantial trial. We are, of course, assuming several things, most of them, however, being based on Minnesota Agricultural Experiment Station findings and practical experience. A plan is, after all, at first only a plan, but it is the first thing and the best thing we can do in adjusting ourselves to the real situation and the actual conditions. The long time program for improved farm practice has only been begun when the plans are completed. The next step is to carry this plan forward to successful execution. We should not allow the planning to have been done in vain.—Edwin Strand.

VOCATIONAL GUIDANCE

Changing economic and social conditions which are altering the employment problem daily will be considered by vocational guidance experts from every state in the Union when they meet in Minneapolis for their 25th annual session on February 23rd to 25th inclusive. Adaptation of the vocational guidance movement to meet situations which may develop within the next decade will be the theme of the convention.

Among the national leaders who are scheduled to appear before the convention group are Owen D. Young, Paul Douglas, Frances Perkins, Mary P. Follet, Russell A. Stevenson, director of the Employment Stabilization Institute at the University of Minnesota; Agnes Ellen Harris, president of the National Association of Deans of Women and Mildred E. Lincoln, president of the National Vocational Guidance Association.

A mood of re-appraisal, combined with definite steps toward plotting the future course of vocational counselling in a changing economic world will dominate the program of the convention.

STATE CONFERENCE

Paul Calrow, State Supervisor for Agriculture, has announced that the state conference for teachers of agriculture will be held at University Farm, St. Paul, during the week of June 19-23, 1933.

RECENT PUBLICATIONS

Flour Milling

Agricultural schools throughout the northwest are a notable aid in keeping up the high quality of the wheat crop in this section of the country and in forcing up the downward curve in milling operations, say Victor G. Pickett and Roland S. Vaile, marketing experts of the University of Minnesota, in their study of "The Decline of Northwestern Flour Milling," just published by the University of Minnesota Press.

Although Minneapolis has lost to Buffalo its place as the leader in the flour milling industry, they say, it appears that the slump has gone as far as it can in this industry, and increased business may result in the near future. Hope is seen by these investigators in the fact that Minneapolis still leads in the production of the highest quality flour milled from fine spring wheats, and there is no sign of the failure of a market for this flour at present.

Hover, J. M., Pittman, M. S. *Profitable Farming*. Row, Peterson, and Company. 1932. 412 pages. \$1.00.

"This text is written for the upper elementary grades. It reveals to young readers the foundations of human welfare in the tillage of the soil, the growing of crops, and the raising of domesticated animals. The book is divided into seven logical units and thirty-seven chapters. Each unit opens with a stimulating introduction. Each chapter closes with suggestions for review, for practical activity work, and for further study."

Tax Study

A series of thirteen lessons entitled, "Tax Study," is published in co-operation with the Kansas Chamber of Commerce, Topeka, Kansas. These lessons should prove helpful to teachers in carrying on evening school discussions when the tax problems are the subject for study.

Hail the F. F. A.!

"Hail the F. F. A." is the theme for a new song just published for the Future Farmers of America. The music and words may be secured from the French-Bray Printing Company, Baltimore, Maryland. The price is fifteen cents per copy.