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REPLACEMENT CROPS FOR MICHIGAN'S CONTRACTED ACRES

H. C. RATHER AND C. R. MEGEE

What Constitutes Contracted Acres

Over 14,000 Michigan farmers have signed contracts with the Secretary of Agriculture to reduce their wheat acreage in 1934 by 15 per cent. A large number are contracting to reduce their 1934 plantings of corn. The land thus taken out of production is officially known as "contracted acres". In return for a substantial payment, farmers who place under contract certain portions of their land give the Agricultural Adjustment Administration the right to say what can be done with that land.

The purpose of the Agricultural Adjustment Administration in contracting these acres is to take them temporarily out of production, thereby reducing the supplies of certain basic farm products with the hope that prices for them will be improved. At the same time, every effort is being made to prevent the unbalancing of the production of other crops. Hence, land taken out of wheat or corn may not be used to grow any other crop to be harvested for feed or market the year that the land is under contract.

Practices Permitted on Contracted Acres

The things which properly may be done on contracted acres actually do take the land out of production for the season during which the land is under contract. However, in the interests of good farming and sound agricultural readjustment, certain practices may be followed, the real benefits of which will be forthcoming in subsequent years.

Contracted acres may be:

- (1) Planted to trees for a farm wood lot;
- (2) Allowed to lie idle by merely mowing off and leaving any natural growth;
- (3) Summer fallowed or worked in such a manner as to control or eradicate noxious weeds;
- (4) Planted to soil improvement or erosion prevention crops not to be otherwise harvested;
- (5) Planted to permanent pasture or meadow crops, no hay to be harvested from these acres while under contract.

Tree Planting

Information on the planting of trees for a farm wood lot or wind break may be obtained from the Forestry Department, Michigan State College.

Summer Fallowing and Weed Control

Areas infested with weeds, especially noxious perennials like quack grass, Canada thistle, bindweed, and others may profitably be summer fallowed.

These weeds are especially difficult to eradicate because they store large quantities of reserve food materials in the underground roots or root stocks. Most

methods of control are based on exhausting the food material in the roots. It is necessary to prevent any green leaf surface from showing above the ground for a period of several months.

There are two general methods of subduing these weeds. The double-plowing method consists of plowing in the fall, again in the spring, and then working the land sufficiently often so that green leaves are destroyed as soon as they appear at the surface of the ground. This method usually subdues heavy quack grass sods in time to plant late-spring and early-summer sown crops. However, if the quack is to be completely eradicated, it is advisable to continue the fallow throughout the summer.

On light soils, it is often impossible to plow during the fall and again in the spring; in such cases, it is advisable to omit either the fall or spring plowing and fallow throughout the growing season.

Neither method will prove effective unless all green leaf surfaces are killed as soon as they appear at the surface of the ground. As soon as the leaves appear, they manufacture and store food material, which keeps the plant alive, and much of the work of cultivating is lost.

Sharp, strong spring toothed or quack grass harrows are very effective for quack grass, while sweeps are more effective for Canada thistles. Quack grass can be completely eradicated during one season if the work is thoroughly done.

Small patches and fence rows may be cleaned up with a chlorate spray. Chlorates are too expensive for large areas.

Soil Improving Crops

Some green manuring crops adapted for use in Michigan are sweet clover, soy beans, field peas, vetch, rye (alone or in combination with vetch), buckwheat, alfalfa, and the clovers. All except rye and buckwheat are legumes. On contracted acres, they may be used as soil improving crops to be plowed under but, when designated for this use, they may not be pastured or otherwise harvested.

For convenience of discussion, the soil improvement crops may be divided into three groups according to time of sowing as early spring, early summer, and late summer.

Early spring sown soil improvement crops consist of sweet clover, alfalfa, clovers, field peas, and mixture of oats and peas or of oats and vetch.

If soil is not more than slightly acid, sweet clover is an outstanding soil improvement crop for spring and summer sowings. Top growth is not rapid during the spring and summer. However, when it comes time to plow under the tops and roots just after growth has started the following spring, large quantities of succulent, high nitrogen organic material often is available for incorporation into the soil. This material decays rapidly and is readily available to benefit the following crop. Alfalfa and the clovers may also be used for this purpose.

The soy bean is probably the most valuable of the summer sown crops. It should be planted during late May or the first half of June. This crop produces an excellent

Crop	Time Sowing	Rate P. A.	Remarks
Sweet Clover.....	Apr. to Aug.	15 lbs.	Legumes require firm seed bed, inoculation and soil not too acid.
Alfalfa	Apr. to Aug.	8 lbs.	Legumes require firm seed bed, inoculation and soil not too acid.
Oat and Pea Mixture....	April.....	1 bu. Oats 1 bu. Peas.....	Ready to plow under mid-summer
Soy Beans	May 20-June 15	35 lbs. in 28 in. rows.. 90 lbs. drilled solid...	Requires inoculation. Adapted to sections growing corn for grain.
Buckwheat.....	June 20-July 15	3 pecks.....	May be planted late and on poor soils.
Rye and Vetch.....	Aug. 30-Oct. 1..	1 bu. Rye..... 20 lbs. Hairy Vetch..	Provides coverage during fall and winter.

growth of nitrogenous material that is ready for plowing under during late August and early September. Sudan grass and the millets may also be sown at this time but are non-leguminous and less desirable than soy beans.

Buckwheat and a mixture of rye and vetch are the late summer sown crops available for soil improvement. Buckwheat may be sown during the last of June and first part of July. It is not a legume but is about the only crop worthy of consideration for sowing at this date. Rye and vetch are sown during late August or September.

Meadow Crops

Contracted acres retired from wheat production may be planted to clover, timothy, alfalfa, or other hay crops of similar nature. Land so planted is not eligible as contracted acreage during the second year when hay will be harvested, and other acres must then be chosen and used in such a manner as to conform to terms of the Wheat Allotment Contract.

Alfalfa

For 15 years, Michigan has been readjusting her crop production, curtailing on wheat, corn, oats, and some other crops but expanding alfalfa to the point where this State has the second largest acreage of alfalfa in the Union.

Recent accounts of serious feed shortages in Michigan and efforts to secure Federal relief for drought areas to avert livestock losses remind us that there still is need in this State for much more alfalfa. Unquestionably, this crop can avert much of the feed difficulties which dry weather so frequently causes. With proper methods, alfalfa can be grown on nearly all Michigan farms.

A grower who takes 35-bushel corn land out of production receives, roughly, enough cash per acre as benefit payment, to buy for that acre two tons of ground limestone, 200 pounds of a good alfalfa fertilizer, and eight pounds of certified Hardigan seed. So does the grower of an average 17-bushel wheat crop. The hardest step in getting a good stand of alfalfa, financing of seed, lime, and fertilizer, is thus made easier.

In establishing alfalfa on contracted acres, the seeding should be made without a nurse crop. On most Michigan lands, this is the more certain method. Here, seedings made in late June or early July seem to be preferable. This gives time to work the land intermittantly and control weeds so the alfalfa will really be alone. It also gives the alfalfa a chance to get started before summer drought. August seedings, in trials at East Lansing, have been thin and uncertain.

The cash crop value of alfalfa has been higher than the average production costs in all but one of the last 15 years, and, with its recognized value for feed, pasture, seed, and green manure, this State can properly grow well over 1,000,000 acres. Nearly 50 per cent of Michigan's farmers have yet to make their start.

Permanent Pastures

The supply of pastures in Michigan is inadequate even though the cow and hog population be reduced materially. The summer feeding of hay, soiling crops, or summer silage adds greatly to a farm's outlay of cash and labor. More pasture of the right kind can eliminate most of this expensive burden. More pasture is strongly endorsed by the Secretary of Agriculture as a desirable form of permanent agricultural adjustment.

In pasture experiments at the W. K. Kellogg Farm on rather infertile sandy loam soil, by far the best results have been secured with alfalfa, provided the land has been properly limed. The lespedezas will grow on acid soil but have not yet demonstrated value in this State and they should, at present, be used only experimentally. Pasture mixtures are suggested which will grow on acid soil but they are not as good as alfalfa would be on that soil after it had been adequately limed.

Some soils are too wet for alfalfa to endure. These require the moisture tolerant crops which are here suggested.

Three precautions should be observed in pasturing straight alfalfa to avoid losses from the *bloating* of sheep or cattle.

1. Give the animals a good feeding before they are first turned on alfalfa pasture.
2. Have water and salt available in the field at all times.
3. Keep the animals on the alfalfa continuously so they never have a chance to get hungry and overeat on this succulent high-protein feed.

Suggested Pasture Seedings

FOR WELL-LIMED OR NON-ACID UPLAND SOILS

- | | |
|---|--------------------|
| 1. Alfalfa | 10 pounds per acre |
| 2. Alfalfa | 8 pounds per acre |
| Smooth brome grass (Bromus Inermus) | 7 pounds per acre |

FOR GOOD MODERATELY ROLLING SOILS OF VARIABLE TYPES

- | | |
|--------------------------|-------------------|
| 3. Timothy | 4 pounds per acre |
| Kentucky bluegrass | 3 pounds per acre |
| Red clover | 3 pounds per acre |
| Alfalfa | 5 pounds per acre |

FOR WELL DRAINED SOILS MODERATELY TO STRONGLY ACID

- | | |
|------------------------------------|-------------------|
| 4. Orchard grass | 5 pounds per acre |
| Red top | 4 pounds per acre |
| Kentucky or Canada bluegrass | 4 pounds per acre |
| Alsike | 2 pounds per acre |

FOR MOIST LOWLANDS

- | | |
|-----------------------------------|-------------------|
| 5. Meadow fescue or Timothy | 5 pounds per acre |
| Red top | 7 pounds per acre |
| Alsike | 3 pounds per acre |

FOR VERY MOIST LOWLANDS OR MARSHY AREAS SUBJECT TO FLOODING

- | | |
|----------------------------|-------------------|
| 6. Reed Canary grass | 8 pounds per acre |
| 7. Reed Canary grass | 5 pounds per acre |
| Red top | 4 pounds per acre |
| Alsike | 1 pound per acre |

Characteristics of Suggested Pasture Crops

- Alfalfa—Palatable; drought resistant; should not be pastured heavily in the fall.
- Smooth brome grass—The most palatable of the grasses; nearly as drought resistant as alfalfa; starts early; long lived; eventually forms dense turf.
- Timothy—Starts quickly; productive; relatively short lived.
- Kentucky bluegrass—Forms excellent turf; palatable and nutritious; long lived; non-productive during hot, dry weather.
- Canada bluegrass—Not as palatable nor productive as Kentucky bluegrass but adapted to poorer soils; no good during droughts.
- Red top—Starts quickly; does well on moist soils.
- Orchard grass—Very vigorous bunch grass; coarse and not very palatable; a good grass on steep hillsides and in shady areas.
- Reed Canary grass—The best of the marsh grasses; tall; forms good turf; very long lived and productive; palatability fair.
- Red clover—A very good legume; short lived; harder to start on dry soils than alfalfa.
- Alsike—The legume for moist areas.
- White clover—A small sized, long lived legume which may be included in small quantities in any of the above mixtures except on poorly drained soil. It was not suggested because of the high price of the seed. It will volunteer in permanent pastures on many of the better soils.