

## AGRONOMY NO. 18—REVISED 1974

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Pastures can be inexpensive feed sources for most livestock classes. But many pastures supply little feed because of weak grass stands and excessive weed growth. Although some pastures can be economically reclaimed with weed control and fertilization, many need renovation. To renovate a pasture, you must replace weak stands of shallow rooted grasses with deep rooted, productive grasses and legumes. Pastures containing significant amounts of legumes have less need for nitrogen fertilizer than pure grass stands.

**Should you renovate?**

Some rundown permanent pastures are on fairly level land which could be part of the regular farm rotation. These can be plowed and put into a row crop for a year before reseeding. Some are on land too steep, rocky, or rough to be tilled. Many pastures are on land too hilly to be in annual crops, especially cultivated row crops, but can be worked occasionally using a field cultivator or similar implement.

Pastures with thin, weak, grass stands or heavy weed infestations can benefit from renovation. Weeds compete with desirable forage plants. A vigorous, thick stand of desirable grasses and legumes is the most effective means of controlling weeds in forage crops.

In Minnesota trials, an average of 140 pounds more beef per acre was produced each year on renovated pastures compared to unrenovated pastures. You can expect comparable results with dairy cattle.



This pasture is a good candidate for renovation because it is heavily overgrazed and produces little feed. Renovation would result in more feed of better quality and more meat or milk per acre.

**Pasture Renovation****When to renovate**

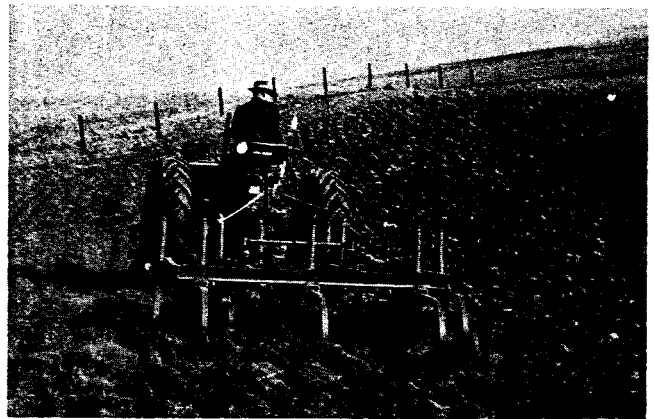
You can start renovating any time during the growing season. If the area can be plowed, either early or late fall plowing gave good results. If cultivation or other surface tillage methods are used, initial tillage in August followed by spring seeding resulted in better stands and production than initial tillage in October or spring (see page 2 table). August tillage allows time for sod to rot, for good weed kill, and for preparation of a fine, firm seedbed the following spring. Furthermore, a rough surface in the fall can catch more water than a thin sod.

If you have heavy infestations of perennial weeds, you might start tillage before August so more cultivations and a better weed kill are possible. Or, you could apply 2, 4-D or other broadleaf weed control chemicals to the weed regrowth to reduce the number of tillage operations needed.

**How to renovate**

Have your soil tested; a fertile soil is essential for establishing desirable grasses and legumes. And a soil test is the best way to determine fertility needs. If lime is required to correct soil pH, it should be worked into the soil several months before seeding.

Phosphate and potash fertilizers move slowly in the soil. If you work initial applications into the soil, the fertilizer is readily available to roots.



A good job of tillage destroys an old pasture sod. The rough surface results in less erosion than would occur on a pasture with a smooth surface.

Heavily overgraze or closely clip the pasture immediately before tillage. This procedure removes plant residues and facilitates tillage operations.

If special weed problems exist (e.g., quackgrass or Canada thistles), you may apply herbicides before tillage to aid weed control. Some herbicides also help kill old sod but the cost of herbicides just for killing sod may be prohibitive. With severe weed infestations, the additional cost may be justified.

For herbicide suggestions, see Extension Folder 212, *Cultural and Chemical Weed Control in Field Crops*. Whenever you use agricultural chemicals, carefully follow all directions on the container's label.

For initial tillage, you can either plow or cultivate. Plowing effectively kills old sod and prepares a seedbed. However, on sloping land, erosion can be a problem, so plow on the contour and lift plows at waterways.

On land where erosion may be a serious problem, cultivation works better than plowing. Thin, overgrazed sods are easier to break with a cultivator than thick sods. Use a field cultivator, digger, cutaway disk, disk, or similar implement that will leave the desired rough, cloddy surface. If available, special heavy-duty diggers are preferable. To effectively cut the sod, the implement must be sharp and heavy.

Repeat cultivation two or three times before freezeup. Repeated tillage gives good weed control and effectively kills old sod. For improved water infiltration and erosion control, cultivations before winter should leave a rough surface with old sod largely exposed.

Another system which has been suggested is to graze the pasture heavily in May and begin tillage about mid-June. Continue tillage during the summer. Seeding would be done in

early August without a companion crop and grazing could start in spring. In Minnesota, this system involves an initial tillage operation at a time when labor demands are high. The August seeding time is early for grasses in some years. This may result in too much legume in the mixture. Otherwise, beginning renovation in June should be successful in areas where rainfall is certain in late summer.

#### Establishing the seeding

If you disk and harrow in spring after the above operations, you will prepare an adequate seedbed but it probably will be trashy. Therefore, seed with a press drill or a grain drill modified to "band-seed." Cultipacker seeders do a poor job on a trashy seedbed.

Seed a good mixture of grasses and legumes in spring. For suggested seeding mixtures and rates, see *Agronomy Fact Sheet 30, Forage Mixtures*. You can seed about 1½-2 bushels of oats as a companion crop; select an early, stiff-strawed variety.

When oats are 8 to 10 inches tall, graze them lightly to reduce competition with the forage seeding. Or you can remove the companion crop early for use as silage or hay. If you harvest the oats for grain, clip the stubble and remove the straw as soon after harvest as possible.

#### Managing the pasture

Do not graze heavily until legumes and grasses are well established. Rotational grazing prolongs the life of the stand and provides better production.

Annual fertilizer topdressings help maintain stands and reduce winterkilling.

### Pasture yield and composition of renovated pastures in a Minnesota study—lime applied in the fall previous to seeding in the spring; fertilizer applied at seeding time

Treatment <sup>1</sup>	Yield, pounds dry matter per acre	Composition of pasture second year after planting <sup>2</sup>
	(two-year average)	Percent seeded legumes and grasses
Unrenovated (no fertilizer) . . . . .	306	--
Plowed August before seeding (no lime) . . . . .	1,028	82
Cultivated spring of seeding . . . . .	850	13
Cultivated October before seeding . . . . .	1,020	41
Plowed spring of seeding . . . . .	1,360	72
Cultivated August before seeding . . . . .	1,632	78
Plowed October before seeding . . . . .	1,904	90
Plowed August before seeding . . . . .	1,921	93

Adapted from: A. R. Schmid, February 1951, "When Is the Best Time to Renovate?", *Minnesota Farm and Home Science* VIII(2):8-9.

<sup>1</sup>Except for first two, arranged in approximate order of merit of the treatment.

<sup>2</sup>The remainder were other grasses and weeds.

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