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Certified Alfalfa Quality from Seed to Feed
Michigan State University Extension Service

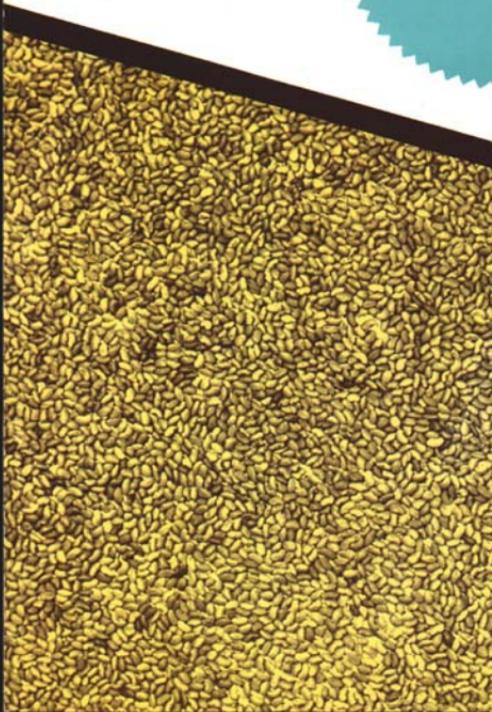
Issued 1964
4 pages

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CERTIFIED ALFALFA

QUALITY
FROM SEED TO FEED



1964

Extension Bulletin 428
Farm Science Series
Cooperative Extension Service
Michigan State University



ALFALFA

Vital to Michigan Agriculture

Michigan's 1½ million acres of alfalfa is a solid foundation for the state's forage-consuming livestock program because it possesses more desirable forage and soil improvement qualities than any other widely adapted crop.

In addition, it is nutritious, palatable, and productive throughout the growing season.

Its deep and extensive root system provides insurance against drought—an important consideration in many seasons.

Alfalfa or alfalfa mixtures are grown on 70% of Michigan's hay land. Yet, we can profitably put more acres into alfalfa. Alfalfa is highly responsive to good management. We can greatly improve quality as well as yield. Yields double the state average are attainable.

The "5 steps for 5 tons" is a program for reaching this goal. Follow the "5 steps for 5 tons" to successful production.

Cooperative extension work in agriculture and home economics, Michigan State University and the U. S. Department of Agriculture cooperating, N. P. Ralston, Director, Cooperative Extension Service, Michigan State University, East Lansing. Printed and distributed under Acts of Congress, May 8 and June 30, 1914.

Cover and Printing Courtesy of Certified Alfalfa Seed Council, Inc.

STEP I

Plant CERTIFIED Seed of Recommended Varieties

Alfalfa varieties are recommended on the basis of performance in trials conducted by MSU at East Lansing and other locations throughout the state. Most of the seed of Vernal, Ranger and Narragansett used in Michigan is produced in the far Western and Southwestern United States. Seed from these areas should always be CERTIFIED. Extensive research has proved that CERTIFIED seed of these varieties from the West or Southwest is satisfactory in Michigan, while a crop from uncertified seed may not be hardy enough for Michigan conditions.

Vernal

Vernal, a Wisconsin variety with desirable winter hardiness, wilt resistance, high yield, fine stems and attractive dark color, has an excellent yield record in a 5-year trial at East Lansing. It is first choice for fields intended for production for more than 2 years.

Ranger

Ranger is widely grown in the state. Like Vernal, it is wilt-resistant but its yield record is not as outstanding. Ranger lacks resistance to the prevalent leaf spot diseases and is less winter hardy than Vernal.

Narragansett

Narragansett is equal to Vernal in yield during the first two years in MSU trials. It is similar to Vernal in winter hardiness but is susceptible to bacterial wilt.

Other varieties and strains are also in performance tests at MSU and the results are available upon request.

STEP II

Meet Soil Requirements

Although alfalfa does well on a wide range of soils, it does best on well-drained soils that are nearly neutral in soil reaction. For maximum yields, the soil must be amply supplied with lime, phosphate, and potash. Mineral soils may be deficient in boron for alfalfa, particularly when the reaction is above pH 6.5. If needed, add two to three

pounds per acre of boron in the fertilizer when topdressing the established stand. Don't apply boron at planting time when alfalfa is planted with a small grain.

Apply lime on the basis of a soil test. At least $\frac{3}{4}$ of Michigan's crop land requires occasional liming for good crops of alfalfa. If possible, apply and work into the soil one year in advance of alfalfa.

Phosphate and potash in liberal quantities are necessary for high yields. Apply according to need indicated by a soil test. Get the most from your fertilizer dollar. Follow the recommendations in Extension Bulletin E-159, "Fertilizer Recommendations for Michigan Crops."

Alfalfa is soil-improving only in respect to nitrogen and organic matter. Large quantities of lime, potassium and to a lesser extent phosphorus are removed from the soil by alfalfa and must be returned, principally by commercial fertilizer.

STEP III

Get A Good Start

1. Plant seed shallow and be sure it is inoculated. Properly adjusted band seeding attachments assure correct seed placement. Always firm the seed into the soil—press wheels or a cultipacker are effective for this purpose. Packing was equally beneficial in MSU trials on both heavy and light soils in both spring and summer seedings.
2. Alfalfa is very responsive to commercial fertilizer—apply the appropriate analysis at the recommended rate through the fertilizer attachment on a grain drill. Usually, liberal quantities of phosphorus and potassium are necessary.
3. To reduce competition from weeds or companion crops in new seedings on problem fields, use appropriate herbicides to control weeds and/or harvest spring-sown companion crop for hay or silage by July 10.
4. Mow stubble and weeds short in August and remove to avoid smothering the seeding.

STEP IV

Carefully Manage Established Stands

1. Don't harvest alfalfa in September if it is intended for harvest the following year. Plants with depleted root reserves are more subject to winter killing.
2. For long-lived stands—good hay fields can be maintained for 4 years or more by cutting twice a year (about June 15 and August 20) in southern Michigan. For stands to be left for 1 to 4 years, 3 cuttings (about June 1, July 15 and August 30 in southern Michigan) will yield from $\frac{1}{2}$ to 1 ton more hay per year than two cuttings. Ample fertilizer, especially potassium (about 80 pounds of potassium per acre) must be topdressed on alfalfa cut 3 times each year after the first harvest year if yields near the 5-ton level are expected. In northern Michigan, two cuttings a year can be expected to yield more hay than one cutting, if topdressed as above.
3. Apply fertilizer on the basis of the soil test, soil group and expected yield. Special consideration should be given to applying adequate potassium if expected yields near the 5-ton level under the 3-cutting system are to be obtained. Fertilizer topdressed on alfalfa should contain sufficient boron to supply $2\frac{1}{2}$ to 3 pounds per acre. Topdress when convenient—in early spring, on the stubble after the first cutting or in the fall. But TOPDRESS.

Tons of Vernal Alfalfa Hay Produced Under Different Annual Potassium Topdressing Rates. 3-year average, East Lansing, Hillsdale Sandy Loam—pH 7.0.

Pounds per acre of potassium annually	Tons of Hay per Acre per Year		Tons per acre Advantage 3 over 2 cuttings
	3-cuttings	2-cuttings	
0	4.6	4.2	.4
40	5.1	4.3	.8
80	5.3	4.3	1.0
160	5.5	4.5	1.0
320	5.8	4.5	1.3

4. Control harmful insects. Spittlebugs, leafhoppers and sometimes grasshoppers may reduce the yield, quality and life of the stand.

Spittlebug damage is worse on sandy soils than on heavy, mineral soils. Use the following as a guide for treating in the spring:

On sandy soils—treat when one or more spittle masses occur to each 5 stems.

On heavy soils—treat when one or more spittle masses occur to each 3 stems.

Spittle masses usually appear by May 5 in the southern part of the Lower Peninsula and by May 10 in the northern part. Lindane or methoxychlor may be used if directions on the label are followed regarding the rate and time of application. The time interval required between application and harvest should also be followed. Adult spittlebugs can be controlled in the fall with methoxychlor.

Leafhoppers are controlled with malathion or methoxychlor when the second cutting is 2-4 inches tall. Other insects such as grasshoppers, are sometimes present with leafhoppers and in some cases cause more damage than the leafhoppers. It is difficult to use a single insecticide that will be equally effective against all insects in alfalfa. Consult your County Extension Agent on specific problems.

STEP V

Harvest and Store

1. Extremely early harvest can damage the stand and lower the yield. In a current MSU study a three-cutting system, with the first cutting in late May or early June, is producing the highest yield of high quality hay. In the same study an early maturing variety, such as DuPuits, produced high yields over a two-year period when cut as early as May 20. Delayed cutting of early maturing varieties results in severe leaf loss.
2. Save the leaves, they contain most of the proteins and digestible nutrients.
3. Avoid storage losses from heating or molding in storage.
4. Mechanize your hay harvesting, storing and feeding with the system which best fits your farming program. Modern hay making equipment is better used on high-quality alfalfa fields.
5. Use These CERTIFIED Varieties:

Vernal—First choice for long-time stands. It is wilt-resistant, winter hardy.

Ranger—A popular variety. It is wilt-resistant, but not as winter hardy as Vernal.

Narragansett—Seed is in short supply. It is not resistant to bacterial wilt, but does well in the absence of wilt.

5 STEPS TO QUALITY ALFALFA

START WITH QUALITY SEED

- plant certified alfalfa seed of an adapted variety



DETERMINE SOIL QUALITY

- test your soil
- lime and fertilize according to soil needs



ASSURE QUALITY STANDS

- plant on firm seed bed
- plant inoculated seed
- place seed at proper depth
- control weeds



MANAGE FOR QUALITY

- maintain soil fertility
- control weeds and insects
- cut at right time
- schedule last cutting to best maintain stand



PRESERVE QUALITY

- preserve quality by proper handling and storage



CERTIFIED ALFALFA *The Base for QUALITY from Seed to Feed!*