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Mechanized Harvesting and Handling of High Yielding Alfalfa  
Michigan State University Extension Service  
Robert G. White, Leyton V. Nelson  
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**EVERYTHING COSTS MORE  
LAND, LABOR, HOUSING, MACHINERY  
THERE'S ONE EXCEPTION  
ALFALFA**

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## MECHANIZED HARVESTING AND HANDLING OF HIGH YIELDING ALFALFA

By Robert G. White and Leyton V. Nelson

### Guidelines To Improved Harvesting

- **Plan For Systematic Harvesting** — Plan a complete harvesting program. Each machine and each operation is one step in the over-all system of harvesting, transporting, and storing the hay crop. Any step or operation that is out of balance with the entire system may create bottle-necks that will slow down the entire harvesting operation.
- **Plan a Reasonable Harvesting Season** — Hay harvested between early bud and early bloom stages is usually highest in quality. First cutting alfalfa should be harvested within a three-week period if at all possible. The harvesting system selected should achieve this goal in at least six years out of ten.

- **Use Good Organization** — Organize operations for efficient use of men and machines. Mow and condition the alfalfa in the morning, **when the field is dry**. Make haylage that afternoon, or bale the following afternoon if weather permits. Get the product into storage as quickly as possible to preserve quality.

- **Use Machines and Automation** — Mechanize all operations that have high labor requirements. Eliminate or combine operations where possible. Plan for a continuous flow of material from field to storage. Keep all operations moving smoothly. Be on the lookout for problem areas that are slowing down operations.

### Common Capacity Ranges

MACHINE	RANGE
7' Mower & conditioner	2.4 - 3.7 ac./hr.
Side delivery rake	2.5 - 5.0 ac./hr.
Windrowers:	
9' Pull-type	3.0 - 4.3 ac./hr.
10' Self-propelled	3.4 - 4.8 ac./hr.
12' self-propelled	4.0 - 5.0 ac./hr.
Field balers:	
Small	3 - 6 tons/hr.
Medium	5 - 9 tons/hr.
Large	6 - 12 tons/hr.
Self-propelled	7 - 13 tons/hr.
Forage harvesters: (Haylage)	
Small	5 - 10 tons/hr.
Medium	7 - 14 tons/hr.
Large	9 - 18 tons/hr.
Self-propelled	10 - 20 tons/hr.

Modern forage harvesting machinery operates most efficiently on high yielding alfalfa fields.

Here are the main considerations for producing high yielding alfalfa.

- **Select and Grow Productive Varieties That Are Suited To Your Forage Program** — With modern varieties it is possible to calendarize forage harvesting by growing early, medium and late maturing varieties.
- **Plant Certified Seed of Recommended Varieties** — The choice of varieties is important. In a recent three-year trial completed at East Lansing in 1967, there was more than a ton difference between the highest and the lowest yielding variety. Consult your county extension agent for information about specific varieties.
- **Meet Soil Requirements** — Alfalfa does best on well-drained soils. Apply fertilizer and lime

according to need indicated by a soil test, soil group and expected yield. Follow the recommendations in Extension Bulletin E-550.

- **Get A Good Stand** — Control weeds, inoculate, plant shallow, firm the soil around the seed.

- **Carefully Manage Established Stands.** — For long-lived stands — avoid September harvest, topdress with fertilizer, especially potassium (about 80 pounds of potassium per acre) on alfalfa cut 3 times each year after the first harvest year to get yields near the 5-ton level. In northern Michigan, two cuttings a year can be expected to yield more hay than one cutting, if topdressed as above.

- **Control Harmful Insects** — Spittlebugs, leafhoppers and sometimes grasshoppers. Consult your county extension agent on specific problems and controls.

- **Harvest and Store** —

Too early harvest can damage the stand and lower the yield. Delayed cutting of early maturing varieties results in severe leaf loss.

Save the leaves, they contain most of the protein and digestible nutrients.

Avoid storage losses from heating or molding.

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.

ALFALFA YIELDS IN THE FIVE-TON RANGE ARE EASILY PRODUCED IN MICHIGAN BY GROWING HIGH YIELDING VARIETIES, OBTAINING GOOD STANDS, HARVESTING THREE CUTTINGS IN CENTRAL AND SOUTHERN MICHIGAN, TOP-DRESSING WITH COMMERCIAL FERTILIZER ACCORDING TO NEED, CONTROLLING HARMFUL INSECTS AND BY HARVESTING AT THE RIGHT TIME.

## Alfalfa and the disappearing man-hour

Alfalfa costs are down.  
Down since World War II.  
Down over the last ten years.  
Down today . . . and projected to drop  
further in the next ten years.

### Why?

Labor required in alfalfa operations is  
dropping sharply.

According to the U.S.D.A., man-hours per ton of  
alfalfa have dropped from 8.1 in 1940-44 to 4.4  
during 1950-54 to 3.1 during 1960-63.

This is a drop of over 60 percent!

In some states less than 3 man-hours per ton  
were normal in 1967!

### The next ten years?

Many projections indicate less than  
2 man hours per ton in 1977.

While labor costs have gone down, yields  
have increased sharply.

A combination of improved certified seed and  
better management has increased alfalfa yields  
per acre about 40 percent during the last  
ten years.

Alfalfa is a refreshing change from the  
inflationary cost spiral.



## Alfalfa and the disappearing pitchfork

Many farmers still associate alfalfa with the  
pitchfork.

That thinking is outdated.

Today's equipment mows, conditions and  
windrows with one operation — with only  
one man. Machines gather and bale.  
Large retrievers pick up, load, haul  
and stack 80 tons of bales a day!

### Sounds modern?

May soon be obsolete.

Some farmers feel that haylage is the  
alfalfa way of the future.

Equipment includes mowers, forage harvesters,  
power unloading wagons, blowers, silo  
unloaders and automatic feeding systems.  
This means alfalfa from field to feedlot —  
totally automated.

Other farmers contend that alfalfa meal,  
dehydrated hay, pellets, hayfers and cubes  
make for more efficient handling. And these  
provide livestock with feed that's more  
concentrated than baled or loose alfalfa hay.

This kind of thinking and progress reduces  
labor and intensifies profits.

PRODUCED THROUGH THE COOPERATION OF THE CERTIFIED ALFALFA SEED COUNCIL, INC.

