

## GETTING THE MOST FROM HARVEST EQUIPMENT MODIFICATIONS

Bob Sheesley and Doug Munier, Farm Advisors  
Fresno and Kern Counties, California

### Baler Modifications Available for Greater Yields

During the December '84 California Alfalfa Symposium three growers reported concerning their experiences with balers modified to reduce traffic damage in hay fields. These growers (from the San Joaquin and Imperial Valleys) each indicated their satisfaction with improved yields during the '84 season as a result of baler modifications and controlling the direction of bale wagon travel in the field.

There were six modified balers in operation during the '84 harvest season. Since the Symposium, ten additional balers have been modified by KIMCO Manufacturing Company in Fresno. These include both New Holland and Freeman balers and are presently in use in six California counties.

From 1984 experiences on over three thousand acres, I believe growers can increase yields by about 3/4 ton per acre per year using the modified equipment and proper irrigation scheduling in areas with six or more cuttings. The most frequently required changes to achieve these yield increases are as follows:

1. Provide enough water for plants to enable continuance shoot growth.
2. Drive bale wagon in opposite direction from baler traffic.
3. Avoid turning around inside or crossing the field, except at the ends.
4. Modify the baler tongue to pull baler with tractor straddling windrow.
5. Use tractors with high clearance underneath and with trailing front and rear wheels.
6. Modify the bale drop-chute on baler to place bale 6" to outside of normal placement.

To quote one of the growers who used two modified units in 1984--"The modifications cost very little in comparison to the possible gain. We also found grass control to be a result of reducing the traffic lanes. We feel the conversions are a step in the right direction."

### Water and Traffic Relationship

Field testing of modified harvest traffic programs have been conducted with growers in Fresno, Kern, Madera and Merced counties during 1984 and 1985. Each of these tests have confirmed the importance of having adequate soil moisture to promote continuous shoot growth from the day of swathing. Without adequate moisture for regrowth buds to grow, the modified traffic has shown minimal yield advantages.

If ample water is not available for regrowth shoots to grow after cutting, then regrowth will not begin until after irrigation water is applied. This dry soil situation results in large yield losses, similar to those expected from 100% wheel traffic at baling time.

With proper continuous regrowth from the day of swathing the modified traffic patterns have paid off quickly and have returned handsome profits to growers. The modified baler kits presently sell for about \$3,000. With proper irrigation and traffic management I believe a grower with 120 acres of alfalfa will be able to show a profit from use of this modified traffic system by the end of the first season. With these kind of cost-effective changes alfalfa growers can stay in business, even at today's hay prices.

### Wider Swath Reduces Alfalfa Drying Time

Time for drying newly cut alfalfa hay can be reduced significantly by fully crimping the forage and laying it out flat to catch the sunshine. This is not what most swathers are designed to accomplish.

I recently compared drying and curing times for a conventional 14-foot, swather-crimper and a custom-made hay conditioner, which had a full-width crimper and laid the alfalfa flat to dry. Temperatures reached 80° F. maximum during this comparison. The results were very interesting, as listed below.

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#### RESULTS OF HAY DRYING COMPARISON (Cutting at 3:00 p.m. on Day #1)

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##### 14 ft. Swather Crimper

2 windrows were combined on 5th day (a.m.)  
Turned windrow on 7th day (a.m.)  
Baled on 9th day (a.m.)

##### Full Width Crimp Conditioner

Raked in 2 1/2 days (a.m.)  
Ready to bale on day 4 1/2 (a.m.)

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This demonstration was conducted during the first cutting from April 10th through April 18th. Results show that it may be possible to greatly reduce the drying time for alfalfa if we do a better job of crimping the hay and lay it out in wider swaths than are presently used.

### What to Do?

By removing the swath deflector shields (sheet metal deflectors) from your present swather equipment you can make the swath about one foot wider. There are a few hay conditioner-swathers on the market today which provide a nine-foot wide conditioner and lay the conditioned hay in eight-foot wide swaths. This type of equipment may help growers to greatly reduce hay drying time requirements. Before baling, these eight-foot wide swaths could be combined using the rakes which most growers have already.

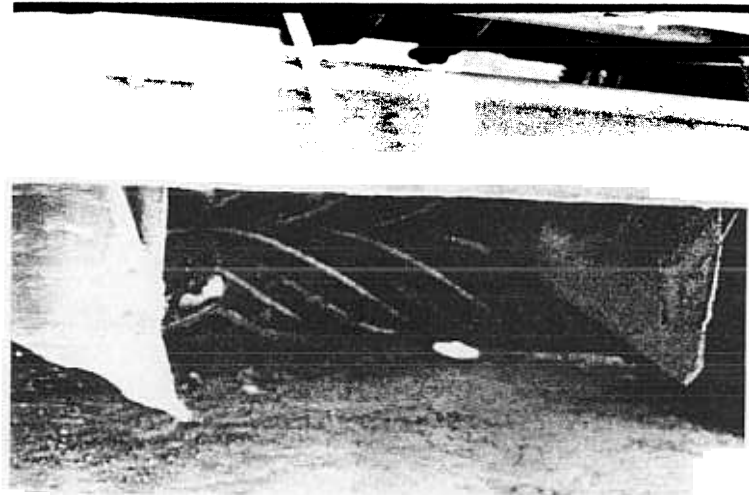
If we can get alfalfa hay out of the field in three to four days instead of six to eight days we should see greater alfalfa yields and avoid some potential rain damage to the first and last cuttings each year. Earlier hay removal will also result in less traffic damage to regrowth shoots, and will allow growers to irrigate sandy soils sooner after harvest. This concept is worth looking into, since conditioner-swathers with nine-foot wide conditioners are already available.



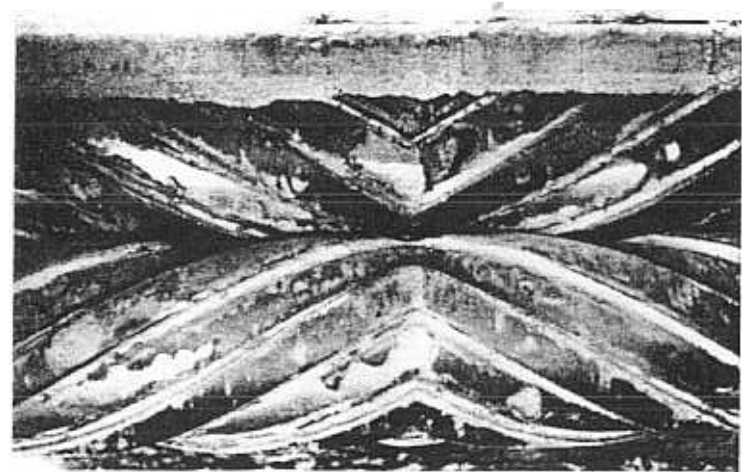
Time for drying newly cut alfalfa hay can be reduced by fully crimping the forage and laying it flat to catch the sunshine.



Most swathers are designed to pile alfalfa hay into a 3 1/2 ft. wide windrow. This adds to drying time.



By removing the swath deflector shields you can make the swath about one foot wider.



A few hay conditioner-swathers are available with a nine-foot wide conditioner and lay the conditioned hay in eight-foot wide swaths.