# DO I NEED TO CHANGE MY IRRIGATION PROGRAM TO PRODUCE HIGHER ALFALFA YIELDS?

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## Irrigating For Highest Yields

When alfalfa hay is grown without water stress or other problems in the central San Joaquin Valley, yields will peak during July. This yield peak is influenced by longer day length (photoperiod) and warm temperatures at that time of year.

If your alfalfa yields peak before July, you need to devise a program to assure the alfalfa plants are not stressed for water, beginning in May and extending through mid-September. Shallow root systems make this irrigation programming even more critical. To maintain continuous growth of alfalfa on sandy or sandy loam soils, at least two irrigations, and sometimes three, are required between harvests during the warm months of May through September.

Four days of semi-drought soil conditions can actually set hay yields back ten to fourteen days in hot weather because of lost root hair surface area. A "bump" irrigation a few days after a normal irrigation in May, June, July, and August is often needed to maintain needed soil moisture during harvest and curing operations. By using a soil probe, you can quickly and easily determine the water availability in an alfalfa field. This should be done at least once each week in every hay field. Continuous monitoring of water availability in the effective root zone will provide information needed to schedule irrigations around hay harvests and avoid costly dry soil conditions.

## What Do Your Alfalfa Yields Tell You?

Monthly cutting yields can reveal helpful information to alfalfa hay growrs in the central San Joaquin Valley. By comparing your monthly cutting yields with the "normal" expected yield pattern of controlled field experiments you can ask youself some pertinent questions. Try this one, for example, from Grower "A" of the Kerman area. "My yields from April through September cuttings on field #1 (a second year field) were as follows":

| | April | May | June | July | August | September | Total for Season |
|---|---|---|---|---|---|---|---|
| Tons/Acre | 1.2 | 1.7 | 1.8 | 1.5 | 1.1 | .9 | 8.2 T./A. |

Grower "A" may be pleased with the 8.2 T./A. annual average, however, he can probably reach 10 tons if he reads furhter here, and takes appropriate action.

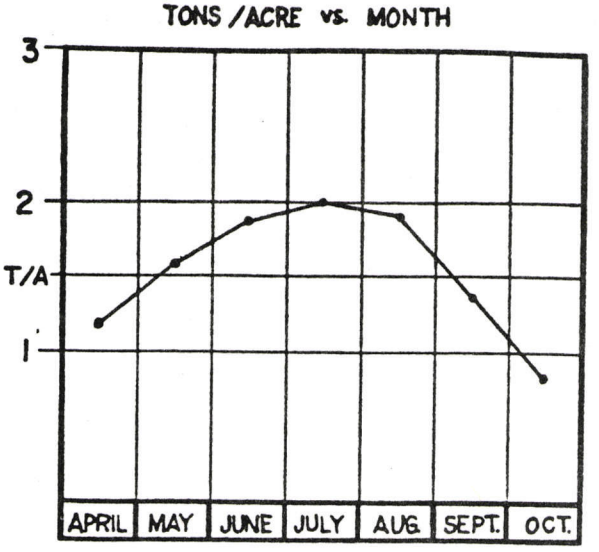
## What is the "Normal" Yield Pattern in the Central San Joaquin Valley?

When alfalfa hay is grown in the central part of the Valley without water stress, nutrient deficiencies, or significant insect, weed or disease problems, yields of monthly cuttings will peak in July This peak is influenced greatly by longer day lengths (photoperiod) and warm tempertures at that time of year. Yield results of six season-long field studies under ample water availability conditions, ample nutrients and good weed control have been averaged for the data presented in Graph #1.

These fields were located in Merced and Fresno Counties, from Livingston on the north to Raisin City and Five Points on the south. The time period represented is from 1979 through 1983. The data includes yields from two second-year fields, three third-year fields, and one fifth-year field. These yields were taken with a 28 to 32 day cutting schedule.

## CENTRAL SAN JOAQUIN VALLEY SEASONAL ALFALFA YIELD PATTERN

**GRAPH #1**




| | April | May | June | July | Aug. | Sept. | Oct. | Total for Season |
|---|---|---|---|---|---|---|---|---|
| 6 Field Test Average Tons/Acre | 1.21 | 1.59 | 1.86 | 1.96 | 1.79 | 1.31 | .82 | 10.54 |

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, simiilar to those expected from 100% wheel traffic at baling time.

The importance of the data in Graph #1 for use in analyzing your hay production irrigation schedule is that yields build to a peak in July, not earlier than July, for the central San Joaquin Valley area. Take time to review your alfalfa yield records. It could be a valuable few mintues spent.

The yields of Grower "A" of Kerman should peak in July, instead of June, if the plants don't run out of water. To correct this yield loss Grower "A" should start adding more water in May and continue the increased water applications through August. To prevent wet surface soil at swathing time Grower "A" may need to irrigate three times between cuttings, with the second irrigation following quickly behind the first.