

ECONOMICS OF WEED CONTROL IN ALFALFA

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The Cost -- The cost of a good weed control program in alfalfa varies from 0 to \$4.50 per ton. The \$4.50 figure assumes maximum herbicide use, an average yield of 8 tons per acre, prorates a \$33 per acre cost of preplant and early postemergence herbicides over a three-year period and includes the annual use of multiple herbicide treatments for summer grass control.

The Benefit -- Weedy hay is worth \$5 to \$20 per ton less than "clean" hay. Roy Thomas, at the 1976 Alfalfa Symposium, reported a spread of \$24 per ton between weedy and weed-free hay in one case. So, it looks like weed control pays off even under maximum herbicide use, but this tells only part of the story.

The Real World -- Alfalfa is unique! There is no other crop where production factors are so closely interrelated. We cannot consider the cost of weed control as a single unrelated entity. It is tightly bound to stand establishment procedures, irrigation management, insect control, harvesting practices, varieties, soil type, climate and plant diseases.

Weeds - Cause or Result? -- The question is often asked: Do weeds crowd out the alfalfa and cause a poor stand, or do the weeds come into alfalfa because of a poor stand? In other words -- are weeds the cause or the result of a poor alfalfa stand? Ninety percent of the time, the answer is they are the result of something which has reduced the competitive ability of the alfalfa. The exception is heavy weed populations which have come up with the alfalfa during stand establishment. These can be controlled with preplant or early postemergence herbicides.

The key point in stand establishment is to get a uniform vigorous stand. This may or may not include the use of preplant or postemergence herbicides depending on the circumstances involved. The key to weed-free hay after obtaining a good stand is to keep that stand as vigorous and healthy as possible.

Where do we go wrong? -- Irrigation can make or break the desert alfalfa grower. Excess moisture can cause scald or root diseases such as rhizoctonia or phytothera. Proper irrigation design and management can eliminate many of these problems.

Drainage -- Poor drainage causes increases in salinity and root disease both of which can weaken an alfalfa stand.

Harvesting practices -- Much has been written about cutting frequency. It boils down to cutting no sooner than the tenth bloom to maintain a healthy stand. Cutting earlier may make the dairymen happier, but it reduces root reserves and weakens the stand.

Compaction -- Machinery traffic is a must in the hay-making process. But anything that can be done to reduce it or its effects will reduce crown damage and soil compaction and lead to a healthier stand.

Insect and disease control -- Weeds are not the only pests which plague alfalfa. Alfalfa weevil, blue aphid, nematodes and root rots can severely damage the crop and open up space for weeds.

The Problem -- The major problem with weeds in desert alfalfa is summer grasses. Barnyard grasses and sprangletop move into the open areas left from scald, disease, compaction or salinity. As the stand becomes weaker, more and more grass becomes established and hay quality decreases.

The Compromise -- Given the ideal alfalfa stand and the best management and growing conditions, weed control costs would be 0. But the ideal is seldom reached -- at least under desert conditions. So, the answer is to use the best management techniques to keep the alfalfa competitive and supplement it with herbicides. Multiple water-run herbicide applications will eliminate summer grasses and troublesome perennials if properly timed. The costs will vary from field to field, but they seem to be well worth the money when the price difference between "clean" and weedy hay is taken into account. Another factor which favors a good weed control program is reducing the weed problem in succeeding crops. The reputation that an alfalfa grower achieves by growing weed-free hay is also an important aspect when it comes to marketing his crop.

The Solution -- It is easy to say "irrigate properly, eliminate compaction, etc.", it is another thing to practice. Alfalfa production in the desert has been termed a "downhill ride -- you start with an excellent stand and abuse it by machine, insects, weather, disease and man until the stand is no longer profitable". Anything which can be done to reduce the damage will increase profit by allowing the stand to remain longer. Reducing damage and increasing crop vigor will also reduce weed problems. The best solution to alfalfa weed control is a healthy stand.