FIELD CROPS

NEWSLETTER

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ALLELOPATHIC EFFECT OF ALFALFA ON SUGARBEETS - Franz R. Kegel

Over the years I have encountered problems when sugarbeets were planted following alfalfa. I usually attributed this to accumulated diseases or nutrient depletion. Recently, Wardere and Bohnenblust of Utah State reported that their greenhouse experiments indicated that the actual alfalfa residue may be causing the problem. We know that alfalfa residue will inhibit alfalfa from germinating, so the following experiments were run.

First, alfalfa seeds planted in pots containing sifted field soil were compared to those planted in soil that contained various amounts of chopped up alfalfa tops. The control treatment showed 77% emergence whereas the treated plots showed germination of less than 30%.

Next, the time of planting in relation to incorporation of alfalfa was investigated. The results showed a trend for better germination the longer the time had passed after incorporation of alfalfa tops. Even at 32 days after incorporation there were still significant differences from the control.

The reporting researchers intend to continue their investigations. At this time we should draw the conclusion that we should put as much time as possible between plowing up an alfalfa field and planting sugarbeets. My preference is to grow a grain crop between alfalfa and sugarbeets.
SAFFLOWER FOR 1989? - Franz R. Kegel

With safflower contracts being offered at the $300 range, growers might consider if this crop should be raised by them in 1989. Safflower has not been discussed much in this newsletter for a long time because it has been attractive to only a small number of growers in a relatively small part of this county. Also, there have not been any innovations for a long time.

Safflower is an ancient oil crop that became economically viable and important on a limited number of acres about 35 years ago. At that time two researchers from the University of Nebraska came to California to introduce this "new" genetically improved crop. They had made selections that had higher yields and an improved content of a high quality oil. Since then we have learned how to grow the crop, and plant breeders have continued to improve varieties, and an industry to use safflower has developed. Farm advisors, University of California, U.S.D.A. and private researchers as well as growers have participated in this process.

Safflower is a member of the thistle family and produces a seed high in polyunsaturated oil. It tends to grow a deep tap root to make use of a large volume of soil and has done very well on deep, medium textured soils benefitting from water tables at 4-6 feet in depth. The mineral soils of the Delta area of San Joaquin County have been very good, whereas sandy soil and heavy clay soils have produced some disastrous results. In this part of California, safflower is normally seeded between February 15 and April 15. Earlier planting produces taller plants that are difficult to harvest and later plantings tend to be very short with reduced yields. The crop is ready for combine harvest in August and September. By then, wheat harvest should be over and field corn is just about to start. Average yields in this county are about 1.25 tons with crops of about 2 tons possible. In less suited locations, the yield may be less than a ton, and I have seen situations of less than 500 lbs. For acceptable yields, moisture must be available to the plant, particularly during the warm and hot months of May, June, July and for late plantings into August. This moisture is best provided by a pre-irrigation and a shallow water table, although post-emergence irrigation is practiced in some areas. Problems here are the susceptibility of safflower to irrigation-induced Phytophthora root rot and the cost of irrigation.

Weeds can be a serious problem as postemergence herbicides are not available. Treflan, the most commonly used herbicide, presents a risk to the following crop, and it is tolerated by sunflowers and perennial weeds such as Johnsongrass. Devastating losses can be caused by safflower rust in fields where safflower follows safflower. Insects are seldom a problem even though the crop can host lygus bugs and thrips. Aphids have caused concern in late planted (after April 15) safflower. Bees are attracted to safflower and since the crop would not be sprayed after blooming starts, beekeepers like the crop too. I do not know if bees will help to increase yield.

The cost of growing a safflower crop is similar to that of growing grain, and the crop, where it is adapted, can be competitive with single crop wheat or barley. Safflower's ability to dry out the soil is appreciated by some growers. Some find that crops following safflower will have enhanced yields. In the Tulare Lake basin, safflower is used to enhance cotton yields.

Safflower isn’t for everyone. It should be grown only on deep, well-drained soils, preferably with a water table at about 4-6 feet. So in San Joaquin County, we are talking mainly about the mineral soils of the Delta and some other river bottoms. For more information check with the appropriate grain buyers or your farm advisor.