

# Weed Strategies at the J. G. Boswell Company

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## Abstract

The J.G. Boswell Company ranches have implemented a successful weed control program on their farm ground in the San Joaquin Valley of California. After several decades of row crop farming, along with many challenges, the land continues to be very productive with weed competition at low levels. Through vigilant efforts, Johnson grass and morning glory to name a few, have been totally eradicated.

## Introduction

Row crop production at J.G. Boswell Company consists of primarily annual crops. Rotation of various crops from year to year on specific fields allows for enhanced tillage practices, optimal fertility management and reduction of specific weed pests. Crop production is ongoing year round, hence, management of weed pests continues throughout the year. Primarily the annual crops consist of cotton, safflower, seed alfalfa, alfalfa hay, and cereal grain crops. Seed production is the biggest reason for implementation and maintenance of weed control programs in the company.

## Discussion

***Philosophy.*** The basic philosophy at J.G. Boswell Company is to not let weeds go to seed. We do this by keeping fields clean and managing weed pests before they become a problem.

***Record Keeping.*** An important role in weed management depends on keeping accurate field records. Levels of infestation, costs of treatments, and mapping are key to maintaining a field history of weed pests.

Infrared photographs are kept to show a history of levels of infestation of dodder weed and/or any other noxious weeds in specific fields.

***Scouting.*** The management structure and intensity lends itself to weed eradication. Our fields are laid out so accessibility is easy throughout the season. Most fields have open roads on all four sides with one or two drive rows within the field. This access provides constant inspection throughout the entire field. Additionally, the observations are easily made by a number of management levels. Agronomists, district managers, and field foreman will likely visit every field two to three times per week.

Another important tool used is helicopter surveillance. Pilots map out and stake noxious weeds during the summer and fall months. Later, hand crews will visit these spots and

thoroughly eradicate weed pests. As mentioned earlier, infrared photography has played a role in past years but its use now is much more limited. New technology consists of G.I.S. (global information systems), whereby weed problems can be “logged” into a set of coordinates based on satellite positioning around the earth. Ultimately, ground based application methods could utilize the positions to make precise applications where necessary.

**Prevention.** Prevention of weed problems must start with equipment sanitation. Caution is used when cultural equipment is leaving a field in which weed pests may have been a problem. Harvesters, both grain combines and cotton pickers, must practice the same preventative measures. Occasionally, harvesters will harvest around weedy areas and cut those areas last, or in extreme cases, avoid the areas altogether. In such cases, disposal of weeds and seed is accomplished by burning.

Nightshade and any other noxious weeds are bagged and exported out of fields by weeders who then put them into enclosed trailers. When full, the trailer is taken to a remote area where the weeds will be removed and burned or buried.

Close mechanical cultivation is extremely important in weed management. Scrutiny on this point is a money saver and moneymaker. Early tillage on fields before weeds can produce seed obviously reduces the future “seed bank.” It is also important from a weed resistance standpoint. If weeds develop a resistance to specific chemicals, then mechanical or hand tillage is critical for elimination of resistant species.

Advanced technology has improved our arsenal of tools against weeds. Electronic sprayers, the ***Patchen*** system for example, allow us to spray specific plants with pinpoint accuracy. Tillage tools like the ***Mulch Master*** have been used to successfully incorporate grain seed and kill small germinating weeds at planting time.

Chemical controls will probably have a fit for a long time to come, although the trend is towards less use at the J. G. Boswell company. Some examples of chemical use in the company are 1) Dinitroanilines – for pre-plant control of certain broadleaves and grasses. Dry granules for alfalfa crops. 2) Cyanazine – layby control of weeds in certain crops. Currently this product has lost its registration and is being phased out. 3) Diuron – waterways and roadside sterilization and weed control in alfalfa. 4) Oxyfluorfen – vegetable crops and fallow bed weed control. 5) Glyphosate – early weed control and defoliation aid. 6) Pyriithiobac sodium – specific control for nightshade. 7) Prometryn – pre emergence weed control; fallow bed. Key to chemical control measures is methods of incorporation. Tools that we have found to be effective are the Mulch Masters, rolling cultivators, and seed bed discs.

## Summary

The weed control strategies employed at J. G. Boswell company have had long term benefits. In spite of the seemingly endless supply of weed seeds through wind dispersal, vehicle traffic, and floods, our company has not only controlled, but also essentially eliminated certain species of weeds. Through persistence and vigilance, combined with close management supervision, weed control can be manageable.