

Artichoke Weed Control: Then, Now and In The Future. Lionell G Handel: PCA, QAL, Agricultural Consultant, Instructor, Hartnell College, Agricultural Business and Technology, Salinas, CA

Just like any crop, good weed control is one of the major task a grower must deal with during the production of artichokes. In the past there were two main approaches in controlling weeds. Timely multiple cultivations and the use of herbicides. As a minor crop (10,000 acres or less), it has been difficult to entice the manufactures towards registering additional herbicides to the cropping list. There were many problem weeds which cultivation alone, could not control of this perennial throughout the growing season.

Originally only two herbicides were registered for weed control use in artichokes, Diuron and Simazine. Later, with the help of UC Davis, Pronamide and Paraquat were added as additional tools. However, as a perennial crop, this still left a large group of weeds that were not controlled and very troublesome. Weeds were directly creating crop competition, stand reductions, and increases in crop losses due to insect and other pests including diseases.

In the '60s, the grower's created the California Artichoke Advisory Board (an artichoke grower marketing agreement) to begin to seek out possible chemical and cultural techniques to save the artichoke industry. In the early '80s it developed the Artichoke Research Association headed by Dr. Bari, to research various insect, disease, as well as rodent and other cultural concerns that were needed for integrated pest management practices. Through the IR-4 Specialty Crops Program, it conducted research seeking supplemental labeling to include many new options for pest management. This research led to several new herbicides that today, can be used as herbicidal tools to give the growers options in combating weeds.

Today, the registered herbicide list for artichokes includes: diuron (Direx); napropamide (Devrinol); pronamide (Kerb); paraquat (Gramoxone); sethoxydim (Poast); oxyfluorfen (Goal/Goaltender; pendimethalin (Prowl); flumioxazin (Chateau) and halosulfuron (Sanda). This broader range of herbicides gives the grower the advantage of switching herbicides to slow weed resistance and implement IPM.

The traditional perennial Green Globe Artichoke variety which was started by using propagated vegetative root stock from an existing field and replanted to a new field to be maintained in culture for 5 to 10 years or more. Today, the traditional perennial Green Globe variety is now being rapidly replaced with new cultivars. These cultivars are new annual varieties grown for one year and then replanted to other vegetable crops. This cultural change is a benefit to the grower because he can now maximize the benefits of crop rotation and utilize other IPM practices, but it now presents new challenges such as plant-back limits, as well as leaving the field with a high seed bank profile that the new crop must face.

Major annual cultivars include, Imperial Star, Emerald, Big Heart, Green Globe, Desert globe, Green Globe Improved, and several proprietary varieties. The annual varieties are planted on a tighter planting, mainly on 80 inch beds and are staggered throughout the fall, winter, spring and

summer months. New demands are put on the available herbicide to now deal with winter, summer as well as perennial weed profiles.

In the Castroville growing area, herbicides that are now being used to combat these weed profiles are: **(preplant)** Kerb, Goal/Goaltender, Gramoxone, Direx, Prowl, Chateau and Sandea; **(pre-emergent & post-emergent)** Goal/Goaltender, Gramoxone, as a directed spray over winter ditches.

Research has been actively been on-going seeking potential supplemental labeling for Shark, and Pendar to be added to the list of artichoke use herbicides.

The future of the artichoke industry is hinged on new cultural IPM practices, new chemical products to control insects, weeds and diseases that now plaque the industry, as well as new invasive species that are bound to make an unexpected arrival. New consumer demands, and more emphasis on organic farming, are just to name a few new challenges. New herbicides are a challenge due to the cost and time it takes for supplemental registrations and the lack of new chemistry to appear on the horizon. The challenge is there for growers, researchers, PCA's, and CCA's.