

CHINESE WEEDEER GEESE
DO THEY OR DO THEY NOT WEED IN THE NURSERY?

David W. Dutton
Wind River Nursery
USDA, Forest Service

Carson, Washington

ABSTRACT

Discusses Chinese Weeder Geese as a method of weed control during tree production operations at the U.S. Forest Service Wind River Nursery, Carson, Washington. Describes cost effectiveness, advantages and disadvantages of this method of control.

This is the ongoing question we at Wind River Nursery have been asked ever since acquiring our first flock or "gaggle" last May. Publicity has been tremendous and favorable.

Yes! I can definitely state, they do eat weeds and weed seeds in our nursery. The real question to answer is the degree and amount of weeds consumed, that I'll discuss with you today.

The birds were developed over 2,000 years ago in China to combat the problem of a farmer's life -- the common weed. They are "eating machines." They live to eat. Weeder Geese will eat their own weight or more in greenery every day.

Weeding with geese is an effective means of controlling grassy weeds in many crops. More than 200,000 weeder geese were at one time used in the San Joaquin Valley, mostly in cotton. With the drop in cotton acreage, introduction of selective herbicides, and management problems, the popularity of using geese declined. Failures of herbicides to control weeds as expected and improved goose management practices have stimulated a renewal of interest in using geese.

Since geese are mainly grass feeders, they are adaptable for weeding many crops where grasses and other weeds are a persistent problem. Beside cotton, geese are used in vineyards, orchards, sugar beets, beans, strawberries, melons, seed alfalfa, nursery crops, hops, asparagus, potatoes, onions, flower crops and irrigation ditches, etc. They are not suitable for weeding immature corn, sorghums, or small grains since these are plants of the grass family and are readily eaten by geese. Geese eat almost all immature grasses and have a particular preference for Bermuda and Johnson grass even when quite large. Geese love wild lettuce and will control other kinds of weeds as well, such as broadleaf, but most of these must be controlled from sprout stage

or the geese will go to other weeds they prefer. At our nursery their favorite weeds are the dandelion, sand spurry, grey weed and all the grasses. We have used the geese mainly on 2 year old seedling beds.

Best weed control is obtained when geese are placed in fields when weeds sprout. If weeds have already made good growth, suppression will be less effective and more geese may be needed. In other words, they are most effective in the spring when the weed is a mouthful rather than a meal. Geese should be left in a field as long as there are weeds to control until the crop is mature, or if the geese would affect quality of the crop. Before the crop is planted or after the crop is harvested, the geese can go into the field and graze volunteer seeds and new weed sprouts. Any time there isn't a crop in the field, the geese can benefit the field. Initially geese alone may not control all the weeds. Best control may require combining geese with cultivation and some hand weeding. Three to five geese per acre will usually be adequate for severely infested grassy fields. In three to five years, one to two geese should keep all of your weeds in check. I feel about 500 geese or about 4 per acre would effectively control the weeds in our nursery.

Most growers prefer young geese. They tend to be more active, less prone to excitement and need more feed for growth and maintenance, whereas old geese need feed only for maintenance. Geese should be about six weeks old and well tethered when placed in the field. Older birds are sometimes used separately or with young geese. They are less subject to attack by predators and dogs and may offer some degree of protection when used together with young geese. (Our problem has been mainly coyotes.)

Grass is low in nutrients and since geese do not have a crop for food storage, they need supplemental feed to maintain nutrition but not enough to make them lazy. Whole grains are suggested at the rate of 10 pounds per day for 100 birds. We feed very little grain during the weeding season. In addition, water needs to be available to the geese at all times.

Adult geese are hardy and usually need little shelter, but northern winters are severe enough to require some protection for them against snow storms and prevailing winds. An open shed facing south serves the purpose very well. Entrance to the shed should be on ground level, as it is difficult for geese to jump over the threshold. Dirt floors are satisfactory when the soil is sandy and well drained, but a concrete floor is easier to clean and more sanitary. The floor of the shelter must be dry and well bedded with straw.

Our initial use and observation of "Weeder Geese" in 1981 was successful enough so that we decided to "go for it" again. We purchased about 70 more in early June. They were a mixture of 6 and 10 week old birds. They fit in well with our 1 year old veterans that we had wintered.

people constantly ask me how much do they weed and what is the cost. Well, if they do eat their weight daily, a 3 lb. goose can eat 3 lbs. of weeds a day. Multiply that by the 60 geese we now have and that's about 200 lbs. of weeds a day or 1400 lbs. in a week. That's a lot of weeds! I believe 50-100 geese will control the weeds in most nurseries.

One very important point is the definite need to direct their movements and keep them hungry.

If your "gaggle" is large enough you can afford to have a "goose herder." Another way to confine them to the desired area is a 1 to 3 foot high portable chicken wire fence.

COST WISE:

If 4 geese per acre/per season can control your weeds, then cost would be very minimal in comparison to labor costs.

At Wind River Nursery (WRN) this would equate to 500 geese at \$8.00 each or \$4,000 for the initial purchase. Add one day's labor per week for care. This would add another \$1,500 per season, plus a little supplemental grain if you wish. Let's add \$500 more for grain and miscellaneous items like fence, etc. So, it will look like this:

500 geese	--	\$4,000
Care	--	1,500
Miscellaneous	--	<u>500</u>
TOTAL	--	\$6,000

Using 130 acres at WRN our goose weeding cost would come to \$46.15/acre/per season. Not bad when you figure this is less than our average labor wage per day.

MAIN ADVANTAGES OF WEEDEER GEESE

- 1) Excellent in weed outbreaks or special areas around a nursery as they favor the seed.
 - a) Have been used successfully in our cottonwood cloning area.
 - b) Were used in Aspen and Cottonwood research areas in the Lake states.
 - c) Can be rented from private concerns to control an outbreak.

- 2) Investment if very low. Reduces labor cost.
500 at \$8.00 each or \$4,000 or about the salary of one of our employees during the growing season.
- 3) "They turn all the green weeds into instant fertilizer."
- 4) They do not eat seedlings if weeds are present.
- 5) "Environmentally sound." People like the concept of an alternative to pesticide use and the instant fertilizer created by the geese.

DISADVANTAGES (Truthfully, there are only a few which I feel are very minor.)

- 1) Can make certain nursery activities a little unpleasant (inventory crew complains).
- 2) Need a person monitoring their activities at least 10 hours weekly (watering, placement in field, shelter, baths, etc.).
- 3) Shelter needed at night for protection from the elements and predators.
- 4) Impractical to overwinter. I recommend against it. The company we deal with has a "buy back" program or you can donate to a local needy group.
- 5) Geese-weeded seedbeds are not as pretty to look at as other weeding methods. (Not completely weed free.)

In summary, I believe weeder geese can control all or most of the weeds in your nursery. It depends on the type of weeding program you operate.

If you favor a weed-free nursery, as most of us do, you could supplement your regular program with geese -- using the geese in weed outbreaks or the smaller areas we all seem to overlook.

I feel that an all geese weeding control program is possible if you wish to eliminate most mechanical weeding and hand labor. However, I don't presently recommend it. Geese will not eliminate weeds, but they certainly will control them if you have enough (4-5 per acre). At WRN we don't plan on geese doing all our weeding. Geese fit in well with our concept of "tree farming using organics," and that is -- there is more than one way of accomplishing a task. We don't get hung up on one way.

Finally, we invite you to visit us any time. We are always willing to show you around and you can check out our geese firsthand. "Watch your step."

REFERENCES

CBS Television National News. 1980. Feature on the Idaho Weeder Geese.

Hansen, Edward. 1982. U.S. Forest Service Research Laboratory, Rhinelander, WI. Personnel communications. Use of geese in weed control in aspen research plots.

Sewald, Dennis. 1981. Idaho Organic Farms, Personnel Communicatios. Use and Effectiveness of Purebred Chinese Weeder Geese.

The Oregonian. July 24, 1980. Take a Gander at the Weed-Eating Geese.

Woodrum, Holbart G. 1952. Comments on Grazing Geese, West Virginia Conservation Magazine, pages 3-5.