

# 10 Ten Steps to Successful Trap Crop Use in the Big Horn Basin

*David W. Koch, Fred A. Gray, and James R. Gill*

University of Wyoming  
Cooperative Extension Service

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Trap crops include radish and mustard varieties. If managed properly, trap crops effectively control the sugar beet cyst nematode (SBCN) and reduce the need for a nematicide or soil fumigant. The following recommendations are based on experience growing these crops in Europe and in the United States. Growing trap crops over a whole season is likely to be too expensive; therefore, recommendations are based on growing them as a second crop.

For best results, practice the following recommendations:

**1 Select fields for growing trap crops.** Fields should be selected for growing trap crops based upon soil sampling results. Sample soil in the fall prior to planting a small grain or forage crop to allow ample time to obtain lab nematode results and to purchase trap crop seed. Fields with the highest counts of SBCN will likely benefit the most from trap crop planting, nematicide application, or soil fumigation. Fields on which the SBCN has been a problem in the past usually will have the highest counts.

**2 Plant small grain or annual forage on selected fields.** Selected fields should be planted first, and if possible, with an early maturing grain variety or forage species. When grain or forage is harvested earlier, the trap crop can be planted as a second crop sooner, increasing the chance that a significant reduction in SBCN can be accomplished.

**3 Manage straw to facilitate trap crop planting.** Straw from the preceding grain crop, particularly if windrowed, can interfere with seedbed preparation, trap crop planting, and irrigation. Using a combine with a straw chopper and spreader will reduce such problems. Either baling or burning straw will assist in drilling or broadcast incorporating trap crop seed.

**4 Prepare a good seedbed.** Because a dense stand of the trap crop is needed, a good seedbed is important. Since time and labor may be limited, plowing, which would prepare the best seedbed, may not be practical. If straw is managed as suggested earlier, the field can be disked to control weeds and/or volunteers and to loosen soil. Disking will be more important if seed is broadcast, rather than drilled.

**5 Timely planting is essential.** The goal is to plant trap crops by August 10. Later planting may be successful but will require above normal fall temperatures. The SBCN is not active below a soil temperature of 50 degrees Fahrenheit. A seedbed preparation method and a seeding method may need to be chosen to facilitate early planting.

**6 Plant for a dense and uniform stand.** Only resistant trap crop varieties developed for SBCN control should be planted; i.e., Adagio radish and Metex mustard. Establish at least 20 seedlings per square foot by planting at least 20 pounds per acre of radish and 15 pounds per acre of mustard. Trap crops can be drilled or broadcast. Trap crop seed can be mixed with fer-



A dense, vigorous trap crop of radish effectively reduces soil nematode populations.



High-yield sugar beets can be grown without nematicide following a vigorous trap crop.

tilizer and broadcast to save time; however, seed must be covered by light tillage or cultipacking. Seed need only be covered ¼ to ½ inch, particularly if the ground is firm. An air spreader will distribute seed and fertilizer more uniformly than a spinner type fertilizer spreader. Contact your local Cooperative Extension Service office for trap crop seed availability.

**7 Make sure fertility is adequate.** After planting small grain, particularly malting barley, soil nitrogen can be low. Test soils for nutrients and fertilize accordingly. In the absence of a soil test, apply 60 to 70 pounds N/A in ammonium nitrate form. Urea should not be used. If not applied with seed, fertilizer can be broadcast after seeding. Trap crops are sensitive to low phosphorus. Previous soil tests will likely indicate if phosphorus is limiting.

**8 Good soil moisture is essential.** Irrigate immediately after seeding because water is necessary for early germination and growth. Trap crops normally will germinate in two to three days. The soil surface should be kept moist during that time. Leaving some stubble, compared with burning or plowing, will help reduce surface drying if the weather is hot. Trap crops have a relatively high

water requirement, yet they can become waterlogged. Another reason water is essential is that the SBCN juveniles are aquatic; therefore, good soil moisture is needed for eggs to hatch and for juveniles to move toward the trap crop's roots.

**9 Control volunteer grain.** Volunteer grain will smother out or greatly reduce the trap crop's growth. Barley is more likely to be a problem than the other small grains. Postemergent herbicide should be applied when the first flush of grain is in the two- to three-leaf stage. Poast® and Select® herbicides are labeled for postemergent control of annual grasses, including volunteer grain in mustard and radish, respectively. Neither herbicide, however, is labeled for grazing. Other methods for volunteer control are moldboard plowing, pre-germinating, and killing with tillage or herbicide before planting trap crops. These methods, although effective, will delay trap crop planting a week or more. Swathing prior to combining also may reduce volunteer grain.

**10 Repeat sampling for the SBCN.** Sampling in the fall after growing trap crops will indicate if there is a need for additional control and/or a need to extend the rotation before planting sugar beets.

Examples of three-year rotations with trap crops:

Year 1	Year 2	Year 3
Small grain or forage crop, followed by fallow or a trap crop	Small grain or forage crop, followed by fallow or a trap crop	Sugar beets
Corn	Small grain, followed by a trap crop	Sugar beets

Examples of four-year rotations with trap crops:

Year 1	Year 2	Year 3	Year 4
Corn	Dry beans	Small grain, followed by a trap crop	Sugar beets
Dry beans	Corn	Small grain, followed by a trap crop	Sugar beets

Editor: Diana Marie Hill-Chavez

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