

RELEASE OF ACERIA MALHERBAE (THE BINDWEED MITE) ON FIELD BINDWEED

Select an area of healthy, lush bindweed. Those patches where the vines are growing up on to each other are ideal. You are looking for the tender growing tip (tips) on green stems with large leaves. For gall placement, take about three inches of a galled stem – a gall in a curled leaf or any odd looking growth – and twist the growing tip of your bindweed around the gall. Keep twisting the two together until you reach the soil level where you can tuck the whole thing under the plant. This is done just to keep the two tightly together. You want the microscopic mite to have no place to go as the gall dries out other than to the new leaf in your patch. You should begin to see the folding and curling of new galls in about 10 days. After a month, the galls are mature enough to run a mower across them if mowing is possible.

The wind will also spread the mites as time goes by. You can also collect from your own mite patch as galls form and continue to transfer the mites to new locations.

Managing Field Bindweed with the Bindweed Mite

Field bindweed (*Convolvulus arvensis*) is one of the most widespread and difficult to manage weeds throughout the United States. The vining plant produces an extensive root system which stores enough nutrients to fuel growth. The plant thrives in the arid western states and will grow on many sites where other plants cannot exist. Control with herbicides is difficult, but the weed can be successfully managed on some sites with fall applications of glyphosate containing herbicides. Control is localities with desirable vegetation, inaccessible areas, and in many agricultural systems is nearly impossible with herbicides.

The bindweed mite, *Aceria malherbae*, is a microscopic mite imported from southern Europe as a biological control agent for field bindweed. The bindweed mite feeds only on field bindweed and closely related wild morning glories. It does not damage other plant species, and it requires bindweed to survive. Bindweed mite feeding causes the formation of gall-like growth of plant leaves. Leaves of infested plants are thickened, and have a “fuzzy” texture. In heavily infested plants, the shoots are misshapen and growth is severely stunted. Recently infested plants have newly emerged leaves that appear folded. The thickened texture and fuzzy appearance are good diagnostic characteristics to identify bindweed mite presence.

Bindweed mites have the potential to aid in suppression or control of field bindweed in many arid regions, and under many plant management regimes. It can be useful in wildland settings, pastures, roadsides, disturbed areas, landscape plantings, and other areas. The best results will be obtained with active management of the mite population, especially by mowing of the bindweed which moves the mites around and stimulates new growth for the mites to feed on. Bindweed mites survive better in drier settings. Their

impact in sprinkler irrigated settings, especially lawns, will probably be less than in non-irrigated sites.

Bindweed mites spend the winter on underground buds on bindweed rhizomes. They have successfully overwintered in Canada and Montana. Excessive moisture appears to be the environmental factor that limits its establishment. Mites migrate to underground buds during drought when plant tops die down.

Bindweed mites are available from collections of infested plant material. Several mite nursery sites have been established in western Colorado and Weld County. Distribution of bindweed mites is coordinated by Weld County Weed Division and the Colorado Department of Agriculture in Palisade. It is best to release mites in the cooler part of the day to maximize their survival. The infested plants should be placed in direct contact with the bindweed that is to be infested. It should be either tucked under the infested plants or twisted up with the bindweed vines to keep it in place and from blowing away. Newly infested galls (folded leaves) should be apparent within a week or so. Do not disturb the release site for a few weeks. After this time, mow the area to distribute the mites and stimulate new bindweed growth. When galls are easily found, they can be harvested and spread to new areas to help distribute mites.

Success in managing field bindweed with bindweed mites is highly dependent on your expectations. If you expect the bindweed to disappear shortly after releasing the mites, you will be disappointed. The initial impact will be a reduction of growth and limited flowering and seed production of infested plants. It will take a year or more for infested plants to die. Control of bindweed over a large area can take years. Be patient, mow, move mites manually and you will increase your chances of success.

