

Weed Biology & Management

Biology and Management of Wild Carrot (*Daucus carota*) in Christmas Tree Production

Wild carrots are native to Asia, Europe, and Northern Africa. It was introduced to North America as a medicinal herb and a root vegetable, which has now become naturalized and has spread to every state. The wild carrot belongs to the family Apiaceae and is also known as Queen Anne's lace. Skin contact with the wet foliage of wild carrots can cause skin irritation in some people. It may also have a mild effect on horses. The compound falcarinol is naturally present in this plant which can be toxic to mice and water flea. In Christmas tree production, wild carrots can be an important dominant weed species which needs to be managed well, especially during the establishment phase of the Christmas trees.

Biology of Wild Carrot:

While wild carrots are mostly a biennial, annual or short-lived perennial forms often occur. It has a long, tapering tap root system. This plant emerges primarily in spring, but also in summer and fall. It forms a basal rosette of leaves the first year and an erect flowering stalk the following year, flowering occurs from July to September. Plants die after flowering. Some plants may act as an annual and flower in the first year.

Reproduction and propagation are by seeds. Most seeds germinate from 1/4-inch soil depth, however wild carrot can germinate from depths of 4-inches. Only a crown of green leaves is produced in the first season. The basal leaves range from 2 to 16 inches long and are three-

pinnate, and the upper leaves are frequently finely divided with pinnatifid segments, which are lance-shaped and toothed, giving the plant a fine, feathery appearance. The flowering stalk is from 4 to 47 inches long, solid, erect, slender, branching, bristly with stiff hairs, and bearing a few stalkless and clasping leaves. The stalk is frequently colored red or purple where it arises from the basal rosette. Flowering stalks are produced in succession until the plant dies. During flowering season from mid-July to September, a plant may produce up to 100 umbels, which are compound and terminal. Each of the 75 clusters of florets in an umbel is supported on its own stem. These stems radiate from the main flower stalk like the spokes of an



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Series for Christmas Tree Production



Figure 1: Wild carrots growing in the field with stalked white flowers.

umbrella (Fig 1). To add to the lacy appearance, each umbel has 14 sepals, with 3 to 5 fernlike prongs matching the feathery, finely cut leaves that clasp the stalks. The flat white flowers seem to glisten in the sun. Flies, wasps, ants, and other crawling insects are attracted to them. After pollination, each flower head closes, forming a bird's nest, inside of which the seeds ripen; by late summer the bird's nest is mature. Some types of bees use it for a nest; ants take refuge in it from summer showers. Seeds can survive for several years under field conditions. Studies have shown that buried seeds can survive up to 20 years.

Management of Wild Carrot

Non-chemical control: Regulation of weed seed production is the key to successful prevention. Prevention by cleaning equipment and using weed-free and fresh, uncontaminated soil is the best course of action. Regular scouting in the field and controlling weeds along farm roads is always suggested to manage the weed species at an early stage. Wild carrot can be effectively managed by pulling and mowing the weed during the first year when the plants are 7 to 10 inches tall and before the plants have gone to seed. Tilling for 2 or more years can decrease the infestation of wild carrot by depleting the seed bank.

Chemical control: Chemical control includes the application of preemergence and postemergence herbicides. Preemergence herbicides need to be applied either before germination of the weed seeds or just after the germination, when the seedlings are very small. The following are some of the preemergence herbicides that are labeled for use in Christmas tree production and have shown good control of wild carrot: isoxaben (Gallery), hexazinone (Velpar), and flazasulfuron (Mission) (Zandstra and O'Donnell, 2018). Postemergence herbicides are applied at later stages, and they are most effective when applied to young actively growing weeds that have not reached their reproductive stages. Glyphosate (Roundup ultra), triclopyr (Garlon), and 2,4-D (Defy amine 4) have shown excellent to good control of wild carrot (Zandstra and O'Donnell, 2018). It is highly recommended to read the manufacturer's label of the herbicides before application and make sure the application timing is right and the herbicide is safe for the Christmas tree varieties. ▲

REFERENCE:

Zandstra, B. and J. O'Donnell. 2018. Weed control in Christmas trees. Michigan State University Extension bulletin E3237.