

Fiddleneck, common groundsel and yellow starthistle
identification in field and bale
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Most alfalfa growers judiciously rid their fields of weeds to increase stand establishment and to maximize yields and forage quality. Nevertheless, some alfalfa is baled or green chopped that contains grasses and/or broadleaved weeds. Occurrence of weeds is more likely to occur in first year alfalfa and in the first cutting in established fields. Owing to their poisonous content, three particular broadleaved weeds are of concern to growers and to livestock owners. These are common groundsel, fiddleneck, and yellow starthistle.

Many poisonous plants are acutely toxic, however, these three species produce illness or death usually only when eaten in considerable quantities and over extended periods of time. Livestock owners or boarders (horses) can protect animals from toxic insults to their organs by selecting feeds that are free of these weeds. Both buyers and growers should become familiar with their specific plant characteristics. Most alfalfa growers are quite familiar with these and other weeds and are able to prevent them from developing in the alfalfa crop with specific herbicide use strategies.

Green weeds in the field are often more readily identified than after they become cured. For most of us, identification is easier once the weeds have developed to the flowering stage. The alfalfa grower has a need, unfortunately, to identify field weeds at a very early, juvenile stage as certain postemergent herbicides are effective only at the seedling or near-seedling stage. Correct identification at the controllable stage is not nearly as easy but with careful attention to the specifics at plant form it can be (and is) achieved. Fiddleneck, common groundsel, and yellow starthistle are distinctly different from one another and with few exceptions can be distinguished from most other weeds found in alfalfa fields. Distinguishing characteristics of fresh specimens of these three species are also helpful when inspecting hay samples for their presence.

Close examination of plant features can be aided by the use of a hand lense or other magnifying glass of from 4 to 10 power. When checking hay, inspect all six surfaces of representative bales. Where possible, open bales and inspect a minimum of two flakes from opposite quarters of the sample bales.

Fiddleneck

Members of this plant group derive their name from the shape of the flowering stalk that curves back on itself in the manner of the head of a fiddle. See the color plates at the end of this paper. There are a number of very similar species of fiddleneck, the most common is coast fiddleneck, Amsinckia intermedia Fisch. and Mey. It occurs both in the Central Valley and in coastal regions. Fiddlenecks are members of the borage family (Boraginaceae) and are all native to California. Fiddleneck species are found in all regions of California. The fiddlenecks are winter annuals, germinating in the fall-early winter following soil-moistening rains. In the juvenile stage the dark green leaves form a somewhat compact rosette. During spring a branching, upright flower stalks develop that attain a height of from 12 to 24 inches, occasionally taller.

Fiddleneck grows in many dryland situations such as rangeland, vacant lots, roadsides, in cereals, and in first-year alfalfa. It is not nearly as well adapted to irrigated conditions as is common groundsel but is somewhat more tolerant of irrigated soils than is yellow starthistle.

The fresh herbage is typically a very dark green. The small flowers, about 1/4 inch across, are orange to yellow in the more common species. Stems and leaves are densely covered with minute stiff hairs that give the foliage a bristly touch. The leaves are long and somewhat grass-like in shape. When dried, the herbage of fiddleneck has a characteristic cinnamon brown color and the flowers have a gray, fine bristly appearance.

Common groundsel

Common groundsel, Senecio vulgaris L, a naturalized weed from Europe, is very common in California but is infrequent east of the Cascade and Sierra mountains and in the desert. It is in the sunflower family (Asteraceae). It is typically a winter annual and first appears in fields soon after the first soil-moistening rain, or irrigation in the fall. It eventually grows to a height of 6 to 18 inches by spring. It can also establish in late winter and early in the spring on newly cultivated soils that are still moist. Of the three weeds discussed here, common groundsel competes most effectively with both newly planted and established alfalfa. The leaves have deeply lobed or tooth-like margins and may be somewhat hairy; and are attached at their base directly to the stem with little or no leaf stalk or petiole. The leaves are arranged along the stem in an alternate pattern. The general color of the herbage when fresh is a grayish green. The plants have hollow stems. Common groundsel does not have bristles or spines and is relatively smooth to the touch.

Flowering commences typically in the winter with the greatest bloom activity in March and April. Cooler conditions near the coast or at higher elevations will delay the onset of flowering. In contrast, warmer locations and deficient soil moisture will accelerate the bloom cycle.

The flowerheads are numerous; yellow, and 1/4 to 1/2 inch long. After flowering, the seed heads develop a tubular shape with a plume of silky white hairs (pappus). Due to a similar color and the presence of pappus, common groundsel is at times confused with annual sowthistle, Sonchus oleraceus L., which can also be poisonous (nitrate accumulator). Sowthistle has hollow stems as well and a milky sap.

Although it is less common in seedling alfalfa, groundsel is becoming more widespread in established alfalfa. It is not common, except occasionally locally in some areas, in cereal grains and wild grass hay.

Yellow starthistle

This member of the Asteraceae is native to the Mediterranean region and is now the most widely distributed starthistle (genus Centaurea) in California. It is uncommon to rare in the Great Basin portion of the state and in the desert area. It too is a winter annual, germinating in the fall-early winter. It typically grows to a height of from 1 to 3 feet and develops rigid branches spreading from near the base of the plant. In the juvenile, low-growing rosette phase, the deeply notched leaves are a light green. As the plant matures and the flower stems develop, the coloration changes to a gray-green. Under dry,

moisture stressed conditions, young rosette plants acquire the gray-green tone.

The stems and leaves of yellow starthistle, Centaurea solstitialis L, often have a loose, finely textured, cottony wool (hairs) on the surface which adds to the gray tone of the plant. Elongated, thickened ribs, or "wattles", develop along and parallel to the stem. Single, bright yellow flower heads appear at the tips of the upright branches. Surrounding the base of the flowerheads are rigid, sharp, straw-colored spines 1/4 to 1 inch long. A photo of this starthistle can be found at the back of this article. Although the spines are harsh to the human touch, they apparently do not discourage stock from feeding on the plants. Yellow starthistle blooms from May-June and continues flowering into early winter. It is particularly adapted to non-irrigated fields, roadsides, fence rows, and to the foothills.

Yellow starthistle is very common on dryland pasture, corrals, and on undeveloped urban and suburban land. It is occasionally a problem in alfalfa, cereals and pasture where dry land is newly brought into crop production. It is not well adapted to irrigation however. It poses a particular health problem to horses.

Identifying fiddleneck, groundsel, and yellow starthistle in hay

These three poisonous plants can be identified rather readily in cured hay since many of the identifying features of the living plants are retained in the dry, baled condition. If plants you are suspicious of in hay do not clearly have the following features they are likely not one of the three toxic species. Again, close examination of some of the characteristics can be greatly aided by the use of a hand lense or other magnifying glass.

Distinguishing Features

Surface of leaves and stems have raised (pustulated) hair bases, on leaves the raised portion is whitish. Sandpaper-like to the touch. Stems and leaves typically cinnamon to chocolate brown with scattered "bumps" or blunted thorn-like growths.

--Fiddleneck

Black tipped flower bracts (involucre) found around the base of the flowers.

Hollow stems ---common groundsel

Flowerheads have conspicuous rigid yellow spines. Surface of leaves and stems covered with matted, cobweb-like hair

--yellow starthistle

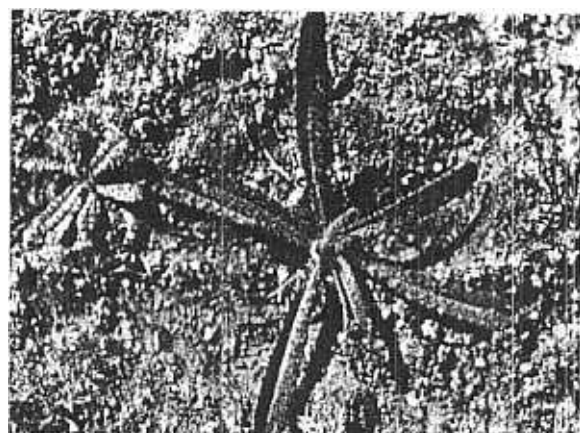
Identifying features of these three weeds in the cured, hay stage can be seen in the Cooperative Extension narrated slide set "Poisonous Plants and Livestock Feed", #84-101. This slide set with taped narration, can be obtained through your county Farm Advisor's Office, from Visual Media, University of California, Davis, California 95616.

The key to preventing livestock health problems from green chop feed or hay contaminated with these weeds is, of course, to avoid such weedy feed. This can be accomplished by learning to identify them. Weed control strategies are presented elsewhere in these proceedings.

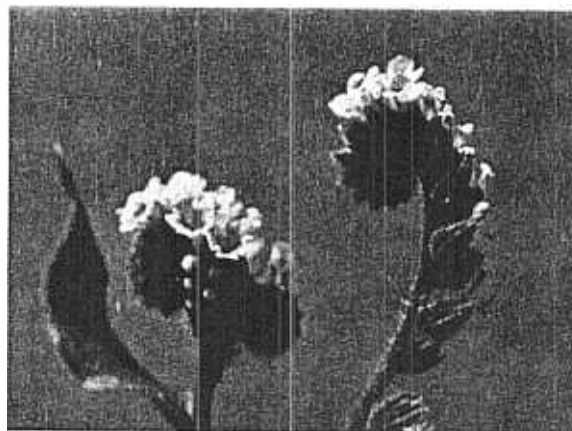
COMMON FIDDLENECK—*Amsinckia intermedia* F. & M.



MATURE PLANT



SEEDLINGS



FLOWERS AND FRUIT

COMMON FIDDLENECK—*Amsinckia intermedia* F. & M. Borage Family

Common fiddleneck is a native of California found as a weed in cropped and noncropped areas. It is an annual that grows as high as 3½ feet (105 cm). The *Amsinckia* genus shows great variability; there are about 20 species found in America.

Large amounts of seed fed to animals in screenings have been reported to cause a liver disease in cattle and swine and "walking disease" in horses.

SEEDLING

The seed leaves (cotyledons) are "Y" shaped, with tiny blisterlike protuberances and a few fine hairs. The first true leaves are four to six times as long as broad, rounded at the tip and covered with coarse, sharp hairs. The color is dull, almost grayish green. The leaves are somewhat harsh to the touch.

MATURE PLANT

The stems of the mature plant are branched, but they may be simple when growing in dense population or under moisture stress.

Leaves: The leaves of the mature plant are three to five times as long as wide and alternate on the stem. The leaves are lance shaped and harsh hairy.

Flowers: The orange-yellow flowers are arranged on one side of the flower stalk (spike), which is curling, resembling the neck of a fiddle. The flower is five lobed and funnel shaped, ⅓ to ½ inch (8 to 12 mm) long. The five pollen-bearing parts of the flower (stamens) are attached to the funnel-shaped flower (corolla).

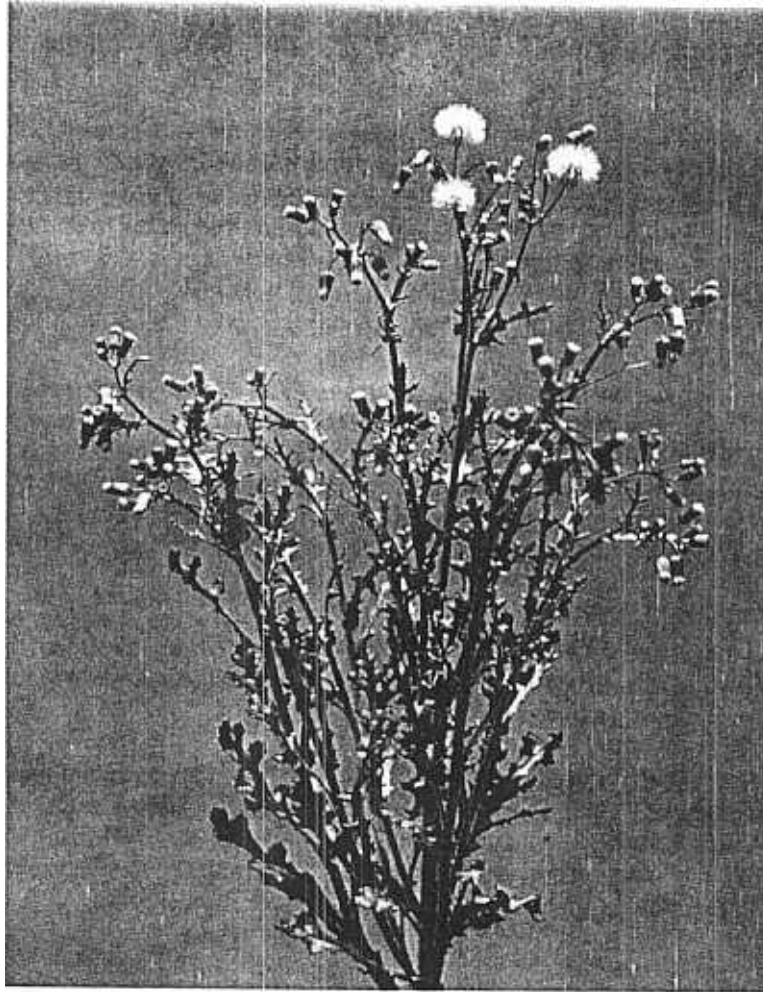
Fruit: Each flower produces a four-lobed fruit, each with one grayish seed. The fruit is a nutlet containing the seed. The seeds are oval and pointed at one end. They are ½ to ¾ inch (2 to 3 mm) long. They have a sharp ridge on the back, a slightly winged angle underneath, and are covered by grayish, wartlike bumps.

OTHER COMMON NAMES

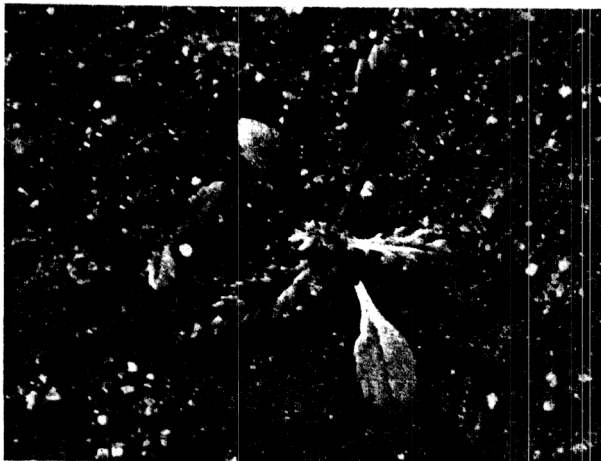
Fiddleneck, yellow tarweed, yellow burweed, yellow burnweed, yellow forgetmenot, and fingerweed.

PREPARED BY BILL B. FISCHER, FARM ADVISOR, FRESNO COUNTY;
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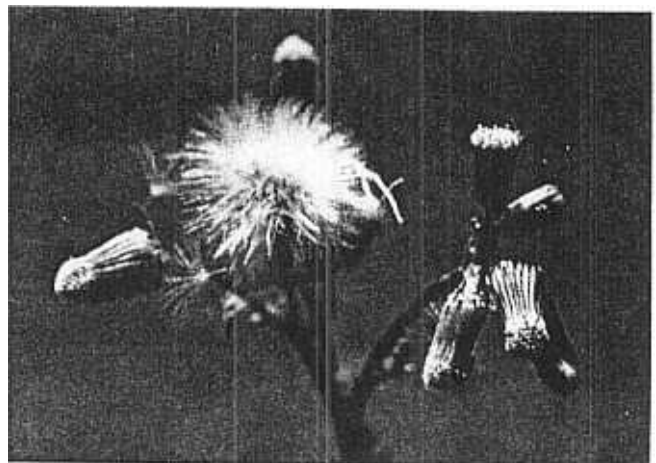
COMMON GROUNDSEL—*Senecio vulgaris* (L.)



MATURE PLANT



SEEDLINGS



FLOWER AND SEED HEADS

COMMON GROUNDSEL—*Senecio vulgaris* (L.)

Sunflower Family

Common groundsel, a winter annual weed found throughout California, occurs in all crops, including orchards and vineyards. Because of its resistance to some herbicides, its number has rapidly increased. Common groundsel has been reported to be poisonous to some livestock because it contains alkaloid pyrrolizidene.

SEEDLING

The seedling has a fairly strong taproot. The narrow seed leaf (cotyledon), coupled with the shallow teeth arranged in a stair- and step-like fashion on the first true leaves, should help in identification. The third and fourth true leaves are more deeply lobed. The color of the leaf is a dull deep green with a reddish tinge. The veins are depressed above and prominent on the underside of the leaf.

MATURE PLANT

The mature plant will reach a height of 20 to 24 inches (50 to 60 cm) with single, but more often branching, stems. These stems are rather succulent, ridged, and more or less hairy.

Leaves: The leaves alternate on the stem; the upper ones clasp the stem, whereas the lower ones taper to short stalks. They are about 1 to 4 inches (2.5 to 10 cm) long and ½ to 1½ inches (13 to 38 mm) wide, and lobed and toothed with jagged margins. Like the stems, they can be loose-woolly to smooth. Veins may be reddish tinged.

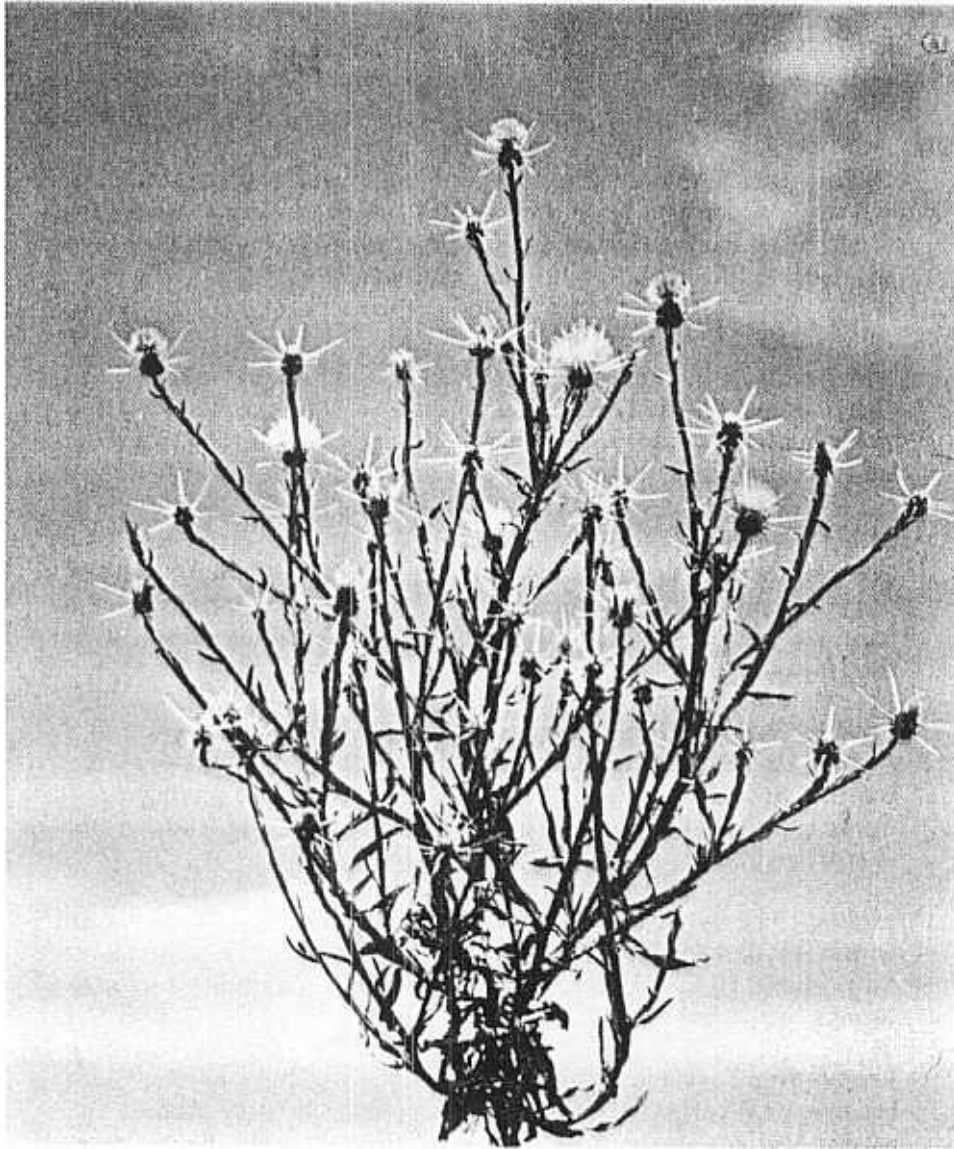
Flowers: Numerous flower heads are more or less clustered together. The heads are cylindrical, about ¼ to ¾ inch (6 to 9 mm) long, and contain 15 to 20 individual tubular yellow disk flowers. There are no ray flowers. The principal green bracts (involucre) subtending the flower clusters are slender and often black tipped. At their bases are short, well developed bracteoles with conspicuous black tips.

Fruit: The one-seeded fruits (achenes) are slender, about ⅛ inch (2.5 mm) long, and low-ridged lengthwise. They are short-hairy along the ridges and are tipped by a tuft of long, silky white hairs.

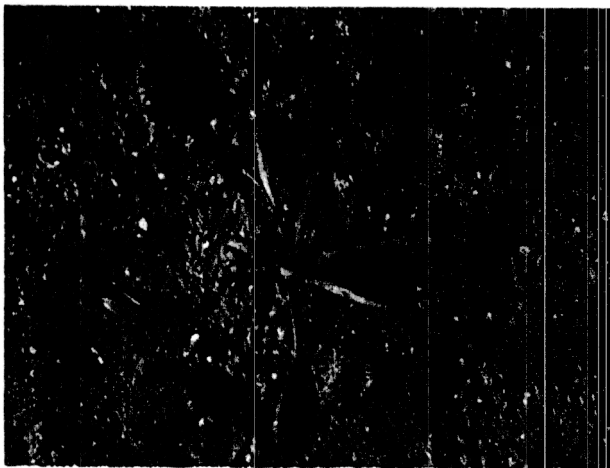
OTHER COMMON NAMES

Ragwort, grimsel, bird-seed, simson, and old-man-in-the-spring

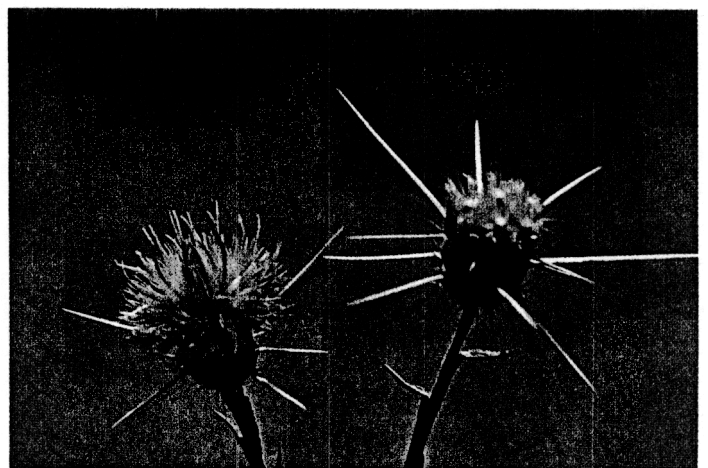
YELLOW STARHISTLE—*Centaurea solstitialis* L.



MATURE PLANT



SEEDLINGS



FLOWER HEAD AND SEED HEAD

YELLOW STARHISTLE—*Centaurea solstitialis* L.

Sunflower Family

Yellow starthistle is a widespread annual infesting cultivated fields, pastures, and waste lands throughout the Sacramento Valley, the North Coast Range, around the San Francisco Bay Area and south to southern California (although less common there).

SEEDLING

The seedling has oblong, somewhat tongue-shaped seed leaves (cotyledons). The first true leaves are somewhat longer. They are dull green but without the pronounced whitish color of later stages, except on the young main stem. The leaves are slightly rough in texture.

MATURE PLANT

The mature plant is grayish green and grows to a height of 1 to 3 feet (30 to 90 cm). The stems are rigid, spreading, and branched from the base. They have a white appearance with a loose, cottony wool, as do the leaves.

Leaves: There are three types of leaves. The basal leaves are 2 to 3 inches (5 to 7.5 cm) long and deeply lobed. The leaves on the stems are narrow, with blades that extend down the stem forming wings. The upper leaves are short, ½ to 1 inch (1.25 to 2.5 cm) long, narrow, and sharply pointed.

Flowers: The dandelionlike, bright yellow flower heads occur singly at the ends of the branches. They are about 1 inch (2.5 cm) across with long, sharp, rigid spines at the base. The lower spines have three prongs, while the middle ones are unbranched.

Fruits: There are two types of seed; some are light colored with bristles, while others are dark to black without bristles. At 68°F the seeds germinate very well in the dark. At high temperatures, they may need some light for optimum germination.

Cases of the nervous syndrome "chewing disease" have occurred among horses feeding on yellow starthistle in poor, dry summer pastures. This disease has been known to lead to death from starvation.