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Recommended Citation
Meadly, G R W (1968) "Amsinckia or yellow burr-weed (Amsinckia spp.)," Journal of the Department of Agriculture, Western Australia, Series 4: Vol. 9 : No. 5 , Article 5.
Available at: https://researchlibrary.agric.wa.gov.au/journal_agriculture4/vol9/iss5/5

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Cereal yields in Victoria have been reduced substantially by yellow burr-weed which could present a major problem to wheat growers in Western Australia. The seeds when eaten in concentrated form have caused stock losses.
AMSINCKIA OR YELLOW BURR-WEED

(Amsinckia spp.)

G. R. W. MEADLY, M.Sc., Officer-in-Charge, Weeds and Seeds Branch

YELLOW BURR-WEED is widely established in the Wimmera and Mallee districts in Victoria, presumably introduced with fodder brought to this country from the United States about 1914. It is a problem in Oregon and other north west wheat areas of America. The weed is also widespread in New South Wales, being most troublesome in the wheat-growing sections of the Riverina. It is not established to the same extent in South Australia and Queensland.

Several species of Amsinckia are native to North and South America and three, A. hispida, A. intermedia and A. lycopsoides, referred to collectively as yellow burr-weed now occur in Australia.

Yellow burr-weed was first recorded in Western Australia when a specimen of A. lycopsoides was received from the Tammin district in 1942. Recently the discovery of further areas in the Merredin district prompted the Agriculture Protection Board to declare it a primary noxious weed for Western Australia. It is a troublesome weed of cereals in Victoria and N.S.W.

Unless control measures are taken, high populations of yellow burr-weed can develop, causing heavy reductions in cereal yields. It is well adapted to lighter soils so has considerable potential importance in Western Australia.

The recent discovery of areas infested with yellow burr-weed at Merredin prompted the Agriculture Protection Board to declare it a primary noxious weed for Western Australia. It is a troublesome weed of cereals in Victoria and N.S.W.

Yellow burr-weed is an annual herb with an erect, simple or widely branched stem, 1 to 4 feet high, bearing alternate ovate or strap-shaped entire leaves 1\(\frac{1}{2}\) to 5 inches long, somewhat fleshy and traversed by prominent midribs, the lower leaves tapering to a leaf stalk attached to the stem by a broad base. The leaves and stems are covered with stiff yellowish hairs.

The numerous flowers are grouped in terminal one-sided, curling spike-like inflorescences 4 to 10 inches long. The small flowers are yellow or orange in colour, tubular with a flared summit. Each flower gives rise to four hard, angular nutlets which become free when ripe. Each nutlet is about one-tenth inch long with a roughened or wrinkled surface.

Description

The first part of the vernacular name refers to the yellow flowers but "burr-weed" is less appropriate for, although the nutlets have a roughened surface, the fruits can scarcely be described as a burr.

The Journal of Agriculture, Vol 9 No 5 1968
YELLOW BURR-WEEED

(Amsinckia hispida (Ruiz et Pav.) Johnst.)

A.—Habit. B.—Stem. C.—Flower (much enlarged). D.—Flower showing two stamens and pistil. E.—Nutlet or "seed"

126
Chemical control of yellow burr-weed in wheat

Significance

Unless active control measures are taken, high populations of yellow burr-weed can develop, providing intense competition to crops for light and nutrients, particularly nitrogen. Tillering of cereals is reduced and a crop can be severely thinned. Reductions of 15 bushels per acre have been recorded in New South Wales, while with some Victorian trials the yield of wheat was increased from 25.9 to 39.6 bushels per acre by controlling yellow burr-weed with prometryne.

The weed is well adapted to lighter soil types and, therefore, is of considerable potential importance in Western Australia. Yellow burr-weed belongs to the group of plants including wild heliotrope and ragwort which contain alkaloids capable of causing severe liver damage. Horses, cattle and pigs have been poisoned by eating a quantity of seeds of the plant but apparently sheep are immune or at least highly resistant. The greatest risk is when the weed seeds are concentrated in grain screenings.

It is stated that, in California, when the stems of the plants are permitted to grow rankly and reach maturity, they become very inflammable, adding to the fire hazards in the grain lands of the San Joaquin and Sacramento Valleys.

Control

Yellow burr-weed belongs to the borage family, which includes Patersons curse and corn gromwell and has similar characteristics, including the longevity of the encased seeds. Any eradication programme must provide for prevention from seeding as well as exhaustion of dormant seed reserves in the soil.

If only a few plants are involved the obvious method is hand pulling or hoeing before seeds are formed. As more than one germination can occur in a season, any infested area should be checked regularly and when plants have dropped seeds, seedlings can be expected for a number of years. Effective cultivation will do much to control yellow burr-weed but because all seedlings do not necessarily emerge at the same time, difficulties are presented by a late break in the season.

The widely used 2,4-D herbicides are not highly effective with this weed but fortunately good results have been obtained with several recently developed chemicals.
Linuron is recommended, at 6 oz. active ingredient per acre; it can be applied with ground equipment or aircraft. As linuron is a wettable powder, agitation during application is very important. Treatment should be carried out at the three leaf stage of the cereal when the weeds are very small. The best time for treatment is much earlier than with 2,4-D, which cannot be applied with safety until stooling has commenced. Although linuron is more costly than 2,4-D it is effective against a wider range of weeds and removal of competition at an earlier growth stage results in greater yield increases, which can be expected to offset the increased cost.

Some degree of control has been obtained with competition from pasture species, particularly subterranean clover, supplemented by grazing and mowing to prevent flowering and seed formation. Although Amsinckia is not highly palatable to sheep, good results have been obtained with heavy stocking.

The seed of yellow burr-weed is relatively heavy and not readily wind borne. Distribution of the weed occurs mainly with farm produce, particularly hay, grain and agricultural seeds.
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