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Weeds of Western Australia - Nut grass - (*Cyverus rotundus* L.)

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NUT GRASS

(*Cyperus rotundus* L.)

This is not a true grass but a sedge. It has negligible forage value and grows strongly in soils which retain moisture during the summer. Besides spreading by means of seeds, new plants also arise from the tubers or "nuts" formed on the roots. Spasmodic cultivation spreads rather than controls this weed.

WEEDS of Western Australia

By **G.R.W. MEADLY** M.Sc.

Officer in Charge, Weeds and Seeds Branch

NUT GRASS

(*Cyperus rotundus* L.)

THE swollen tubers characteristic of *Cyperus rotundus* are often referred to as "nuts" and give rise to the name Nut grass. This name is also applied at times to other species of *Cyperus*, similar in appearance, but not producing the swollen tubers. *C. rotundus* is also called Java grass. Both are misnomers as the plant is, in fact, not a grass but a sedge and has none of the desirable features of the true grasses.

Members of the *Cyperus* group occur in many parts of the world, with their greatest development in tropical and sub tropical countries. A number of different species occur in Western Australia, some being native and others introduced. The subject of this article is regarded as being native to the northern parts of the State but has, with little doubt, been introduced to the South-West. The Umbrella grass causing concern in the irrigation areas is *C. Eragrostis* while several other species of somewhat less significance are found over a wide area.

Sedges favour moist soils and Nut grass is found mainly in damp situations such as along the banks of creeks and on wet flats. Irrigated land also provides favourable conditions. One of the most troublesome areas is on the fringe of Benger swamp.

DESCRIPTION

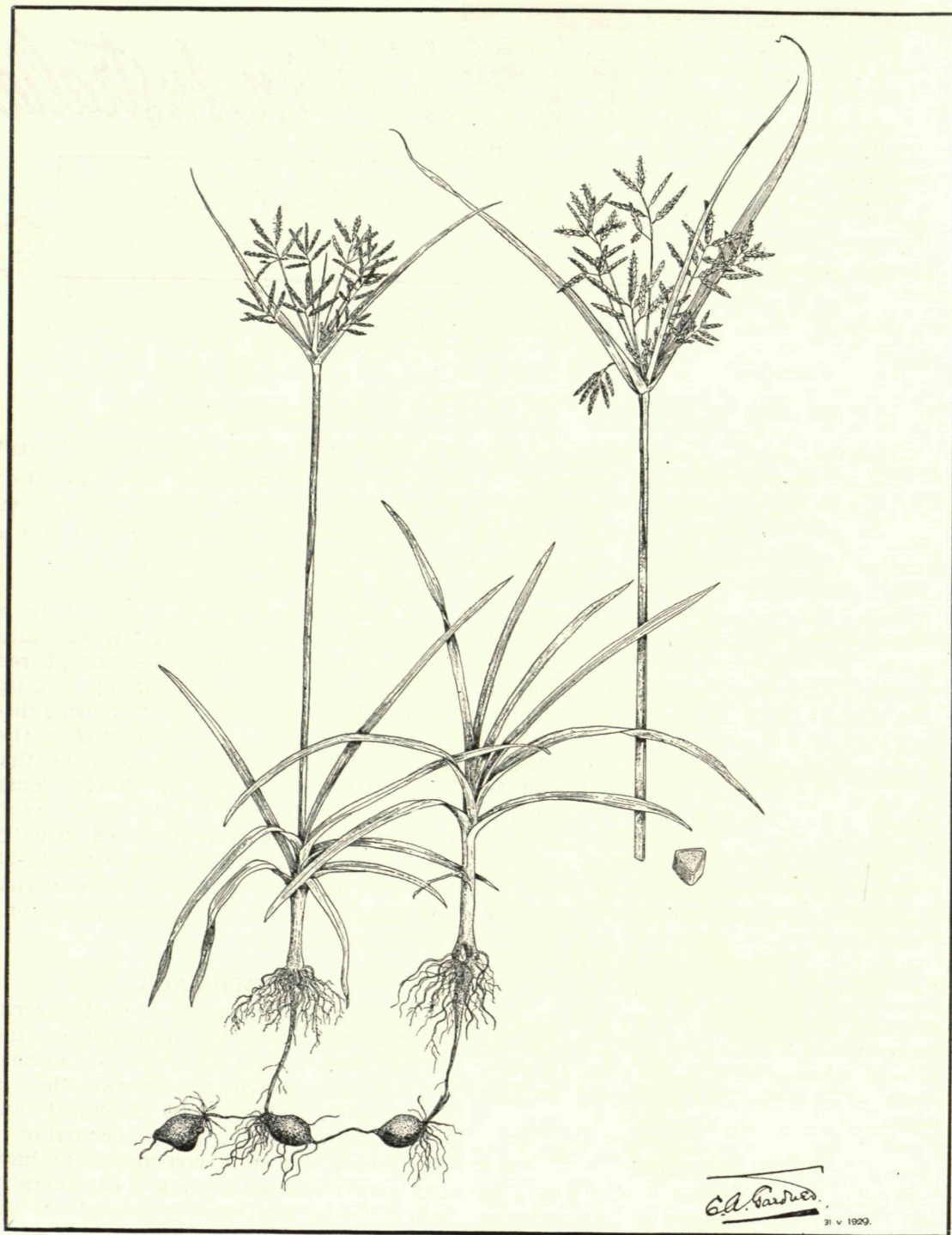
As already mentioned, "nut" refers to the hard swollen tubers associated with the root development. These are shown clearly in the pen drawing. The grass-like appearance of the sedge has given rise to the remainder of the common name.

Nut grass is a perennial plant with a creeping rhizome swelling at intervals into small tubers. The stems are slender, three angled, especially towards the top, and up to 18 inches in height. The narrow, shining grass-like leaves are shorter than the stems and have conspicuous loose sheaths. The flowers are borne in fairly dense clusters of 6-10 brown spikelets. Each spikelet is narrow and flattened, usually about one half inch long, with 12-20 florets. The nut ("seed") is three-angled and less than half the length of the enclosing glume.

SIGNIFICANCE

In Queensland several species of *Cyperus* are regarded as having forage value and for this reason some agriculturists in that State have opposed the introduction of insects with a view to the biological control of Nut grass. No species occurring in Western Australia is considered to have any value although there is a considerable difference in the weed potential of the various types.

Nut grass has all the undesirable features of a strong-rooted perennial and is well equipped for propagation. Besides



NUT GRASS.
(*Cyperus rotundus* L.)

producing a considerable number of seeds it is also capable of spreading vegetatively, as each tuber or "nut" can produce a new plant.

Although sometimes occurring in pastures, it is most troublesome in moist portions of orchards or on land used for vegetable and flower culture. The young leaves are eaten to a limited extent by cattle and horses but, when mature, become very fibrous. Pigs tend to root out the tubers but are not sufficiently thorough in this respect to provide an effective control measure.

It is interesting to note that the tubers are rich in starch and have been used as a food by aborigines. They are also said to yield an essential oil used by the natives of Upper India for perfuming clothes.

CONTROL

Being a weed of many countries, the control of Nut grass has been widely investigated, attention having been given to cultural, chemical and biological methods. All workers are agreed that it is one of the most difficult weeds to eradicate and there is every reason to stress the importance of preventing it from becoming established. If only a few plants are present it is worth the effort to remove them carefully by forking and, if necessary, to sieve the soil to locate all the "nuts".

The tenacity of Nut grass is indicated by American investigations which showed that, on a sandy loam soil, it was necessary to continue ploughing or discing at intervals of three weeks or less during two consecutive growing seasons before eradication was obtained. Such treatments reduced the infestation approximately 80 per cent. during the first year. Queensland workers have had similar results and regular cultivations at about fortnightly intervals for at least one year have enabled crops to be grown for three to four years without severe competition from the weed. It is important when undertaking cultural operations to treat the infected area as a unit and not work through it. Portions of the rhizome including the "nuts" are readily carried by machinery and clean parts of a paddock will soon

become infested if cultivation is carried out through an affected area.

Chemicals do not provide a simple answer to the problem. Sodium chlorate and arsenicals will kill the foliage and stems but do little harm to the underground parts and new shoots soon appear. To be effective, spraying must be repeated in much the same way as cultivation. The 2,4-D herbicides, particularly the ester, give a greater degree of penetration but not to the extent of reaching all the "nuts" and several applications of at least 2 lb. acid equivalent per acre are usually necessary.

A method developed in Queensland is to cultivate the land thoroughly while the Nut grass is dormant. This breaks up the rhizomes and results in a copious growth of plants from both seeds and "nuts" when temperature and moisture conditions become favourable. Two or three weeks after emergence of the new shoots 2,4-D is applied at the rate of 2 to 3 lb. acid equivalent per acre. There is generally a substantial reduction in density of the Nut grass following the first spraying. The need for care when using 2,4-D near garden plants cannot be overstressed. Besides the risk of spray drift, there can be a residual effect in the soil for some time after treatment.

A high degree of control has been obtained with C.M.U. but at least 20 lb. per acre is required and the cost of the treatment makes it impracticable for other than small areas. Best results have been associated with two ploughings six weeks apart, each ploughing being followed by the application of 20 lb. C.M.U. per acre.

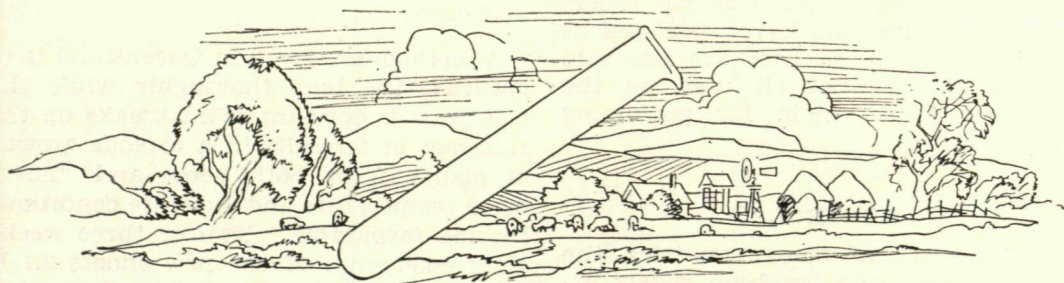
Soil fumigants are used for the control of Nut grass and, with little doubt, methyl bromide is the most effective treatment. This is applied under gas-proof covers and a good kill has been obtained, not only of the growing plants but of seeds and dormant tubers. For best results the soil should be cultivated prior to treatment to increase the depth of penetration of the methyl bromide vapour. Under favourable conditions 2 lb. of the chemical is suf-

ficient for 100 square feet. Although a practical treatment for small areas such as seed beds, the cost precludes its use for extensive infestations.

Although some attention has been given to biological methods no real progress has been made in this direction. As already mentioned there is some divergence of opinion regarding the desirability of introducing parasites, as some species of

Cyperus are regarded as having forage value.

Pigs are fond of the tubers and, if confined on an infested patch for some time will reduce the infestation, but eradication by this means cannot be expected. Poultry penned on Nut grass also have some effect by removing the green shoots as they appear and scratching out some of the tubers.

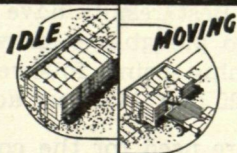


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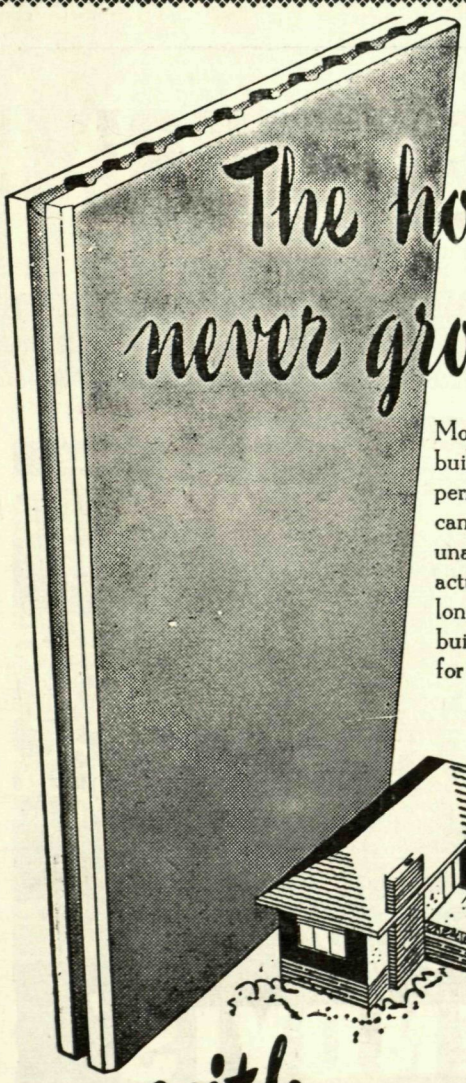
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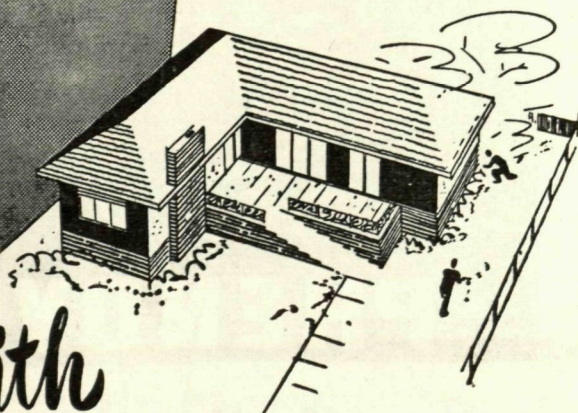
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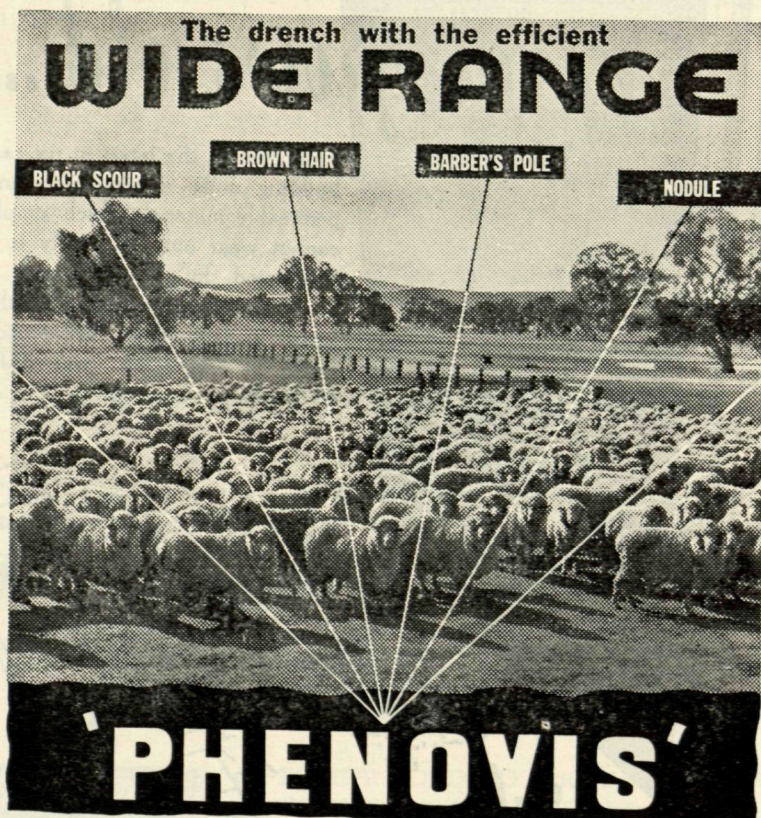
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