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### Weeds of Western Australia—Water hyacinth

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## WATER HYACINTH

[*Eichornia crassipes* Solms.]

Although Water Hyacinth is not a weed of crops or pastures, it is of considerable significance to agriculture. Irrigation channels have been blocked and waterways rendered useless by dense infestations. It occurs naturally in tropical and sub-tropical America, but has become established in many other countries including some with temperate climates



# WEEDS of Western Australia

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

Officer in Charge, Weeds and Seeds Branch

## WATER HYACINTH

(*Eichornia crassipes* Solms)

**T**HE story of Water Hyacinth is similar in many countries. It occurs naturally in sub-tropical and tropical America, in Venezuela being called "Ear of a Mule" or "Little Boat." Plants were first introduced to the United States of America in 1884, and excited great admiration. Many visitors to the Floral Exposition in New Orleans carried away plants to their gardens and pools. Surplus material was thrown into creeks and within a short period Water Hyacinth was carried through the waterways of Florida. To quote Dr. P. W. Zimmerman—"The rapid spread of Water Hyacinth in the Southern States, with its adverse effects on agriculture, health and wild life and its interference with drainage and navigation has been an alarming problem for many years."

Water Hyacinth now occurs very extensively on Indian waterways and has also been recorded in pest form from a number of other tropical and sub-tropical countries including Africa. It is not restricted to such conditions, however, as shown by Australian experience. An early report states that the first Water Hyacinth on the Northern Rivers of New South Wales was purchased from a nurseryman at Brisbane by a local resident who subsequently threw some plants into the Swan Creek at South Grafton. Another reference mentions that in 1899 a couple of small, wilted insignificant-looking plants were procured from a home in a Sydney suburb and placed in Swan Creek on the Clarence River. Within a few years the hyacinth had taken complete possession of numerous creeks and lagoons associated with the Clarence and Richmond Rivers. In 1906 the New South Wales Parliament appointed a commission to inspect the areas affected by Water Hyacinth on the Northern Rivers and make recommendations in the matter.

In the Spring of 1937 a resident of a fruit-growing settlement on the River Murray in South Australia, being impressed by the beauty of Water Hyacinth which had multiplied rapidly in a fish pond at his home, introduced a few plants into Ramco Lagoon with a view to improving the scenery and possibly increasing tourist traffic to the River District. Within eighteen months many acres of the lagoon were covered with a dense mass of the weed which had also spread to other lagoons and to the River Murray itself. Fortunately, as a result of drastic action by the South Australian Department of Agriculture the infestation was eradicated.

The date of introduction of this plant to Western Australia is not known with certainty but in 1929 the only recorded occurrence was at Dog Swamp on the Wanneroo Road. Subsequently Lake Monger became infested and presented the greatest problem while a small area was also located in the Uduc Brook at Harvey.



## DESCRIPTION

The common name is self-explanatory. The plant is restricted to water or permanently saturated soils and the flowers bear some resemblance to the garden Hyacinth although not closely related botanically.

The plants normally float on relatively still water, the roots developing to a length of several feet and hanging freely except in shallow water. They are made buoyant by bladder-like swellings of the young leaf stalks. These swellings, largely filled with air, decrease in size as the leaf becomes older. The leaf blades are dark green and rounded with a tendency to curve inwards. The flowering scape is 6 to 12 inches in length with several bracts subtending 6 to 12 delicate pale heliotrope to mauve flowers. Each flower has a curved perianth tube with six segments, the upper one with a prominent yellow marking.

Water Hyacinth propagates rapidly by vegetative means. Stolons radiate from the parent plant and clusters of leaves,

along with roots, are soon formed at their extremities. These in turn produce further stolons. The joining links become brittle with age and a mild agitation of the water is sufficient to cause sections to break away. These soon form independent colonies. Under favourable conditions three plants have been reported to produce 3,000 new plants in 50 days.

Propagation by means of seeds also occurs. These sink to the bottom and germination normally takes place on the soil forming the bed of a lake or lagoon. The seedlings soon rise to the surface and make rapid growth.

## SIGNIFICANCE

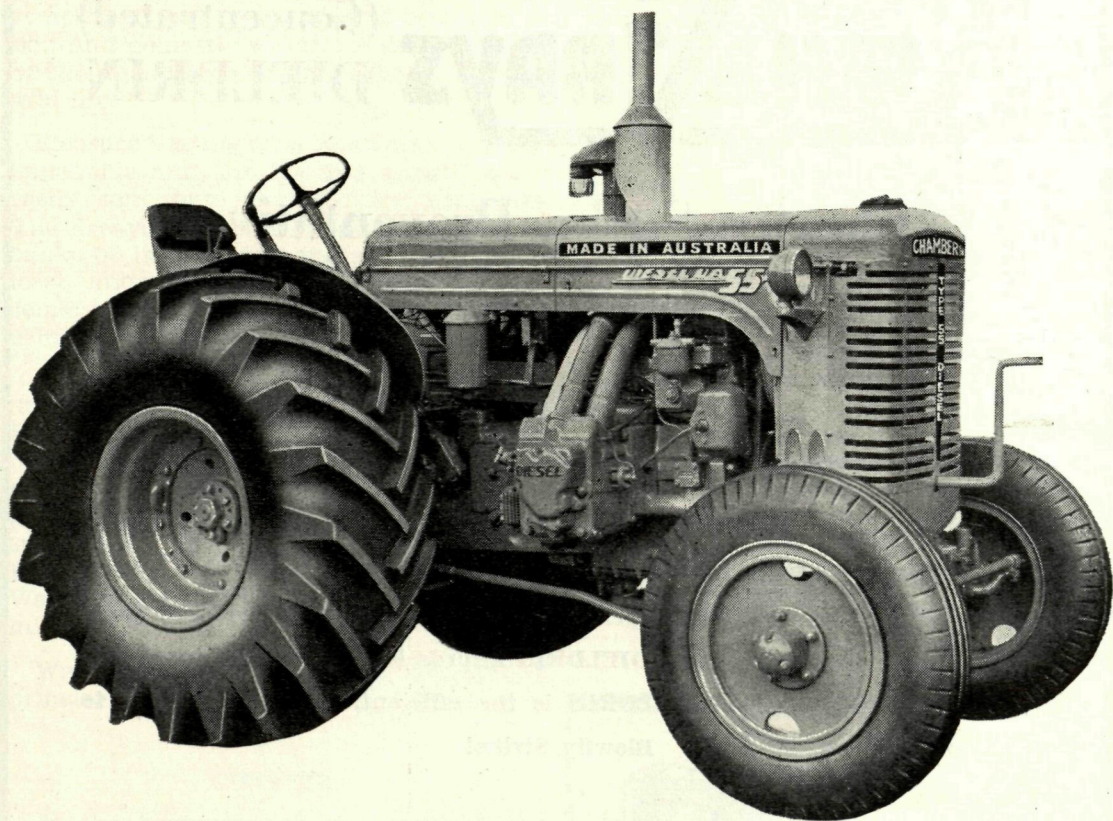
Although Water Hyacinth is not a weed of crops or pastures it has a number of undesirable features, several of which are of significance to agriculture. Important waterways in many countries have been made unfit for navigation thus eliminating an economical form of transport. Irriga-



Water Hyacinth growing on Lake Monger. The plants in the right foreground show the effects of a recent spraying with 2,4-D. The weed has now been eradicated from Lake Monger.



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tion systems have been disorganised, not only by reducing the flow in channels but by blocking pipes. Additional screens and filters must be fitted and maintained at no small cost in the case of both irrigation and domestic water. A dense growth of the weed can also affect fish and other wild life.

Pleasure boating with small craft is made impossible and the floating growth could easily contribute to drowning accidents. The decayed material, particularly on the banks of lagoons and lakes is, to say the least, undesirable and the water can become unfit for consumption by human beings or even livestock.

From time to time suggestions have been made concerning possible uses for Water Hyacinth. Utilisation of the potash and nitrogen content for fertilizers has been mentioned along with products such as paper, fodder for cattle and inks. These suggestions have originated mainly from India where, in Bengal Province alone, Water Hyacinth covers some 10,000 square miles.

Water Hyacinth has been declared a primary noxious weed for the State.

### CONTROL

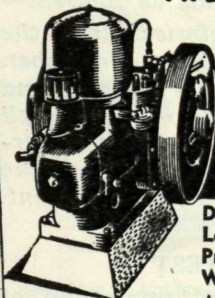
At the beginning of this century, the United States of America was exploring various control measures. Booms and fences were constructed and dredges with conveyors and mechanical rollers were tried, but no effective method for extensive areas was found. A number of chemicals were also tried with little success and were less satisfactory than the mechanical methods.

On Lake Monger in Western Australia, where an area of 40 acres or more was covered with Water Hyacinth, removing the weed mechanically was not practicable and an effective chemical appeared to give the greatest possibilities of control. The results with a chlorinated benzene were not encouraging and in 1946 the first of a series of trials with hormone-like herbicides was commenced. The weed was killed by various formulations of 2,4-D at the rate of 2 lb. of acid equivalent in 100 gallons of water per acre.

Subsequently it was found that higher rates of chemical were necessary to induce rapid sinking of the plants and also that low-volume treatments were satisfactory. This information paved the way for the use of aircraft for spraying—the only practical method for large infestations growing at a distance from banks. Highly successful results were obtained by the application of 6 to 8 lb. acid equivalent of the amine salt of 2,4-D in two gallons of water per acre. The amine was preferred to the ester because of the risk of damaging cultivated plants in the vicinity of the lake. A Tiger Moth plane fitted with a 30 ft. boom was used. Most of the spraying in this State has been undertaken early in the summer—November and December—but a fast rate of killing and sinking has been obtained in America by treatment during the relatively slow-growing period (August-March). The treatment described has enabled Water Hyacinth to be eradicated from Lake Monger and has given confidence that any further outbreaks can be handled.

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