

(Solanum elaeagnifolium, Cav.)by A. F. Tideman⁺INTRODUCTION

Over the last 15-20 years a perennial species of *Solanum* has come to be regarded as a menacing weed in South Australia. It was called wild tomato or quena and recognised as *S. esuriale*.

During 1958, while trials which were begun by the late H.E. Orchard were in progress, examinations showed that two species were involved. Subsequent comparisons by Symon at the Waite Agricultural Research Institute with specimens grown from seed imported from America proved that *S. elaeagnifolium* was also present. This plant had been first recognised in South Australia by J.M. Black in January, 1947.

This led to reappraisal of quena as a weed in South Australia and it is now recognised that *S. elaeagnifolium* is the species presenting the problem. Undoubtedly its potential as a perennial weed in areas with mean annual rainfall above 14-15" is very serious. *S. esuriale* on the other hand is restricted to lower rainfall areas, less than about 18" and prefers sandy soils. Only occasionally does it present weed problems.

Reports have shown that *S. elaeagnifolium* has been established as a weed in mid-northern areas since 1937 and has been confused with *S. esuriale* as well as *S. ellipticum*, all of which are referred to as wild tomato by the farming community. When it was recognised that *S. elaeagnifolium*, listed as silver-leaf nightshade in Standardized Plant Names, was present, it was considered best to call it tomato weed. This retained in the name its likeness to the plentiful wild tomato plants and yet established a different species. Any connection with the nightshades is certainly not appreciated by the farming communities and it was therefore felt unwise to try to adopt that name.

⁺South Australian Department of Agriculture.

Field Identification of S. elaeagnifolium.

S. elaeagnifolium is not easily distinguished in the field from other wild tomato species, particularly S. esuriale. The following table lists the features which help separate these two species:

<u>S. elaeagnifolium</u>	<u>S. esuriale</u>
1. Upper leaf surface deep green. Both surfaces covered with a stellate tomentum.	1. Uniform in colour on both surfaces and covered with a thick dull stellate tomentum.
2. Calyx acuminate in shape	2. Calyx lobes tend to be acute rather than acuminate.
3. Sinuate leaf margins.	3. Usually entire leaf margins.
4. Veins on leaves prominent.	4. Veins not obvious.
5. Spines fine and straight.	5. Spines stout and sometimes curved.
6. Tend to form large colonies.	6. Tendency to form colonies less marked.

Varying environmental conditions such as frosts and drought tend to confuse these distinguishing features.

The Importance of S. elaeagnifolium as a weed in South Australia.

Recent observations have shown that S. elaeagnifolium has spread during the last 10 years and can now be found in many areas throughout South Australia. The most serious infestations occur between Rhynie and Hilltown on red brown earth soils receiving from 20-25 inches rainfall per annum.

It is a deep rooted perennial. Roots have been traced beyond 4 ft. into heavy clay sub-soils. It competes severely for moisture in cereal crops and does not seem to be checked by pastures containing perennials such as phalaris and lucerne.

In the River Murray irrigated areas it appears to be of no direct importance to the well being of established trees and vines. However the incidence of colonies in some places is now becoming severe enough to interfere with the successful establishment of cover crops.

Control.

Early in 1958 pilot trials were commenced as a guide for more detailed work which was planned for the following summer. Maleic hydrazide, dalapon, 2,4,5-T, various esters of 2,4-D, amino triazole and amino triazole mixed with pentachlorophenol were applied at flowering.

The butoxy-ethanol ester of 2,4-D showed promise of outstanding control. Effects can still be observed although the plots have not received further treatment.

However replicated trials carried out during 1959 did not substantiate these original observations. As the plots received only 11 inches of rainfall for the year (average about 20") it was decided that the work should continue.

2,4,5-TP has been added to these treatments and initial observations show that it has promise.

Further trials have been set out this season to study the possibilities of deep ripping colonies and the effects of soil sterilants.