

Chilli Wilt and its Control

by

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Chillies are cultivated in almost every district of this State over an extent of 1,25,180 acres and this forms one of the important money crops to the ryots. This crop is affected by a number of fungal diseases, among which the fruit rot and die-back caused by *Colletotrichum capsici* and the fruit rot caused by *Alternaria solani* were considered to be the most important ones. However in recent years a wilt disease caused by *Sclerotium rolfsii* is gaining importance in this State, especially in Udumalpet and Pollachi taluks. The disease appears all of a sudden under favourable conditions and spreads very rapidly.

Symptoms of the Disease: The initial symptom of the disease is the drooping of leaves in a few branches. The drooping may spread rapidly to other branches also, depending upon the humidity and soil moisture. When the wilted plants are pulled out whitish, thread-like, cottony growths can be seen at the collar region. Sections of the infected portions reveal that the fungus can invade deep into the tissues also. The bark at the infected portion rots and the fungus penetrates into the wood and causes wilting. The fungus is also capable of infecting the fallen leaves and fruits of chillies. Later on, the fungus produces the sclerotial stage, which can be easily identified by the presence of greyish, mustard-like spherical bodies (Sclerotia). These sclerotia are able to remain viable for long periods and are not affected by adverse climatic conditions. Therefore control measures should be started long before the formation of sclerotia to keep off the disease from the field. It was also observed that the spread of the fungus on the stem is limited to the extent to which the soil is earthed up round the stem. In severely affected fields the mortality range of the plants goes up to 60% when left unchecked. In order to evolve suitable control measures for the disease, field experiments were laid out in a private holding at Erisinampatty (Udumalpet taluk) and the results are given in the following paragraphs.

Materials and Methods: The control methods mainly consisted of soil applications of various fungicides, to kill the fungus as well as avoid conditions favouring the spread of the disease. Nine

treatments (vide table 1) were tested in randomised and replicated plots. Each plot included 45 plants and measured one cent in area. Before drenching the soil, the earth around each plant was removed and a small basin was made, to hold the fungicides used for drenching. Completely wilted plants were carefully removed and destroyed and the soil around the uprooted plants also was drenched with the fungicides. Irrigation was stopped for four days after giving the treatments. The treatments were given thrice, at an interval of one week between the first and second and two weeks between the second and third treatments. Observations were made before giving the treatments each time and the condition of the plants were recorded as healthy, partially wilted and completely wilted plants.

Experimental Results: The first round of treatments was given on 29-10-1955 when the plants were about four months old, after recording necessary observations; the second and third rounds of treatments were given on 7-11-1955 and 23-11-1955 respectively. The results of the observations made are furnished in the table below:

TABLE I

Treatments	Strength used	No. of wilted plants at the time of starting the experiment	No. of apparently healthy plants at the time of starting the expt.	No. of further wilted plants	Mean percentage of wilt after treatment
Orthocide	1 lb in 50 galls.	19	161	10	6.13
Bordeaux mixture	1%	11	169	2	1.21
Cheshunt compound	1 oz. in 2 galls.	22	158	4	2.51
Leytosol	0.1%	29	151	7	4.86
Leytosol	0.5%	24	156	0	—
Ceresan (wet)	0.1%	23	157	1	0.66
1-Hydroxy - 2 (H)	} 1 gm. in 2½ galls.	19	161	11	7.22
Pyridinethione Na salt					
Removal of earth		21	159	0	3.69
Control		18	162	10	6.19

It is seen from the table that drenching the soil with 'Leytosol' 0.5% is the most efficient method of checking the disease and this is followed by Ceresan wet 0.1%, Bordeaux mixture 1% and Cheshunt compound, in order of merit, the other treatments being inferior to these.

Cost of Treatment: The chemicals were drenched at the rate of 250 gallons per acre. The costs of fungicides used for one drenching are given below, the cost of labour for drenching works out to Rs. 1—4—0 and this being the same for all the treatments except the control, the cost of the chemicals alone has been taken into consideration.

TABLE II

Fungicides	Quantity required per acre per treatment	Cost per pound	Total cost of chemical required per acre
Orthocide	5 lb. 4 oz.	Free supply	Price not known
Bordeaux Mixture	Copper sulphate 25 lb.	0 12 0	19 8 6
	Lime 25 lb.	0 0 6	
Cheshunt Compound	Copper sulphate 1 lb. 4 oz.	0 12 0	3 9 0
	Ammonium carbonate 7 lb.	0 6 0	
Leytosol 0.1%	2 lb 8 oz.	Free supply	Price not known
Leytosol 0.5%	12 lb. 8 oz.	- do -	- do -
Ceresan wet 0.1%	2 lb. 8 oz.	4 13 3	11 0 6
1 Hydroxy 2 (H) Pyridinethione - Na salt	100 grams.	Free supply	Price not known

Conclusion: Leytosol 0.5%, Ceresan wet 0.1%, Bordeaux mixture 1%, and Cheshunt compound (1 oz. in 2 gallons of water) have effectively controlled the disease. Although Cheshunt compound is slightly less effective as compared to Leytosol 0.5% in controlling the disease, it is much cheaper in cost, besides being non-poisonous and it can also serve as a nitrogenous manure, as it contains nearly 85% of ammonium carbonate.