lowest TSS, whereas Nabapur local (white) and Bellary red recorded low yield with high TSS compared to N-53. Considering both bulb yield and TSS, N-2-4-1 can be a suitable variety in place of Bellary red.

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A Note on Chemical Control of Cowpea (*Vigna uniquiculata* (L.) Walp.) Pod Borer Complex.

Cowpea is subjected to severe infestation by the pod borer complex involving *Maruca testulalis* (Geyer) *Cydia ptychora* (meyrick) and *Lampides boeticus* Linn.

The efficiency of six different insecticides in controlling the cowpea pod borer complex was tested by laying out a replicated trial in RBD. Each plot measured 3.0 x 2.7 meters. Cowpea variety C-152 was sown with a spacing of 4.5 x 10 cm during second week of July.

Single application of four insecticides in different formulation as detailed in the table was made during the pod initiation stage. The efficacy of treatments was assessed based on larval population, pod damage on five plants selected at random from each tratement and grain yield.

Data presented in the table indicate that the percentage of pod damage was significantly least in monocrotophos spray (21.55%) as compared to tother treatments except in endosulfan spray (28.85%) and malathion spray (42.8%) which were on par with each other. These were followed by endosulfan dust (60.12%), neem oil spray (73.88%), malathion dust (83.19%) and untreated check (90.66%).

Lowest population of spotted pod borer, *Maruca testulalis* Geyer was found in monocrotophos spray (2.33) which was significantly superior to all other treatments. Endosulfan spray and dust, malathion spray, and neem oil spray were equal in their effectiveness. Malathion dust (6.33) was significantly inferior to monocrotophos and endosulfan spray. Untreated check recorded significantly highest (10.6) larval population.

The lowest larval population of *Cydia ptychora* Meyrick was found in monocrotophos soray (1.00) which was superior to all other treatments followed by endosulfan dust and neem oil spray which were on par. Malathion dust, endosulfan spray and malathion spray were on par with each other. Untreated check recorded significantly highest larval population than all other treatments (Table).

Table Effect of different insecticides on cowpea pod borer complex

Treatment	Dosage/ ha.	Per cent pod damage	Larval population per five plant			Grain yield Per	
			M.testulalis	*C. ptychora*	*L.boeticus*	plot (in gm)	Hectare (in q.)
Endosulfan 35 EC	1.2 l	28.85a (32.52)	4.00b (2.36)	3.33b (2.07)	1.33b (1.13)	595.67	7.35
Endosulfan 4D	20 kg	60.12 (50.88)	4.66 (2.36)	2.00 (1.71)	0.33 (1.13)	539.67	6.66
Malathion 50 EC	1.2 l	42.80 (40.51)	5.33 (2.50)	3.66 (2.13)	0.66 (1.24)	566.67	7.00
Malathion 5 D	20 kg	83.19 (65.80)	6.33 (2.63)	3.00 (2.00)	0.66 (1.24)	560.00	6.91
Monocrotophos 40 EC	0.6 l	21.55 (27.69)	2.33 (1.82)	1.00 (1.38)	0.33 (1.13)	650.33	8.03
Neem oil spray	3.0 l	73.88 (59.28)	5.66 (2.57)	2.00 (1.73)	0.66 (1.27)	330.00	4.07
Untreated control	-	90.66 (72.24)	10.60 (3.40)	7.33 (2.87)	1.66 (1.62)	273.33	3.37
S.Em±		7.39	0.12	0.15	-	203.76	
C.D. at 5% level		22.78	0.39	0.47	-		

Figures in parenthesis indicate angular transformation values (a) and x+1 values (b)

None of the insecticidal treatments differed significantly in respect of larval population of *Lampides boeticus* L. However, insecticidal sprays recorded lower population and pod damage.

All the insecticidal treatments increased the yield significantly. The untreated check (3.37 q/ha) recorded lowest which was significantly inferior to rest of the in secticidal treatments except neem oil spray. Further, endosulfan dust, malathion dust, malathion spray, endosulfan spray and monocrotophos spray recording yield at par were significantly superior to neem oil spray and untreated check. The increase in yield was highest (138.3%) in monocrotophos, followed by endosulfan spray (118.1%), malathion spray (107.7%), endosulfan dust (97.6%) and malathion dust (84.3%). The per cent increase in yield in neem spray over untreated check was minimum (20.8).

The results obtained on pod and seed damage larval population of *M.testulalis, C. otychora and L.boeticus* ten days after application and grain yield revealed that the monocrotophos spray and endosulfan spray were superior to malathion spray and dust, endosulfan dust and neem oil spray. The results on the efficacy of monocrotophos and endosulfan on pod borer control is in agreement with Dina (1977) and Lal *et al.* (1981).

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Quantitative Relationship Between Alternaria Blight of Soybean and Loss in Grain Yield

Alternaria leaf blight causedby *Alternaria tenuissima* (Kunze ex Pers.) Wiltshire, has become a serious disease next to bacterial pustule in Soybean production (Sundaresh and Hiremath, 1981). Though, the leaf infection occurs late, it causes considerable defoliation before grain is physioloigically matured and leads to formation of small, shrivelled grains. Much information is not available on the extent of loss due to this disease. Therefore, a study was initiated to assess crop loss and to build a suitable crop loss model.

An experiment was carried out with 32-2 soybean variety, susceptible to alternaria leaf blight. Different levels of blight severity were simulated by spraying six fungicides at 0.2 percent (ai) concentrations. In all, three sprays were given at 15 days interval commencing from the date of first appearance of the blight. The blight severity was assessed 15 days after the final spray, using a 0-4 scale.

Further, the disease index was calculated and the corresponding grain yield was recorded. With the help of recorded grain yield potential, yield of the crop was estimated by the curve fitting method of James, *et al.* (1968) with suitable modifications. The percent loss (1) in grain yield was calculated using the formula $\left[\frac{y_p - y_x}{y_p}\right] \times 100$, where y_p is potential yield and y_x is yield at blight severity level x. Finally, using the grain yield and blight severity relation the crop loss model was developed as $\% I = \frac{b}{a+b} (I - \cos dx) \times 100$, where a+b represented potential yield and b and d as suitable constants. Correlation and regression techniques were used for estimating the parameters and judging the fitness of the model.