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## Avoidable losses from sucking insect pest of groundnut

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### Abstract

According to studies on the calculation of groundnut yield losses from main sucking insect pests, the protected plot's yield (1883 kg/ha) was much higher than the unprotected plot's (864 kg/ha) yield. The protected plot produced 1019 kg/ha more than the unprotected plot. This demonstrated a 54.11 percent preventable loss during *Kharif* 2019 and a 117.93 percent improvement in yield over the unprotected plot.

**Keywords:** Groundnut, yield loss, sucking, protected

### Introduction

Groundnuts, or *Arachis hypogaea* Linnaeus, are an important leguminous oilseed crop with nutritional and industrial value. Tropical and subtropical nations are where it is farmed. It is grown on 4.72 M ha in India, yielding 4.70 MT and 995 kg/ha of productivity. Asia leads the world in groundnut output (71.1%) and area (63.4%). Nigeria (11%), China (19%), and India (26%), are the three main groundnut-growing nations. India produces 38.70 million tons of groundnuts annually on 43.20 lakh hectares, with a productivity of 691 kg/ha. Most of India's groundnut production occurs in the country's southern and northwest regions. Approximately 90% of the nation's groundnut land is shared by Gujarat, Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra, and Madhya Pradesh together (Talawar, 2004) <sup>[1]</sup>. Gujarat was predicted to produce 30, 54,671 MT of groundnuts overall, with an average yield of 1879 kg/ha (Anonymous, 2017) <sup>[5]</sup>. Junagadh region has been home to a number of insects that have been seen, including aphids (*Aphis craccivora* Koch), jassids (*Empoasca kerri* Pruthi), thrips (*Caliothrips indicus* Bagnall), leaf-eating caterpillar (*Spodoptera litura* Fabricius) and gram pod borer (*Helicoverpa armigera* Hubner).

### Materials and Methodology

A field experiment was conducted to study the loss in yield due to major insect pests of groundnut at Krushigadh, Junagadh Agricultural University, Junagadh, Gujarat during *Kharif* 2019. The variety TG-37 (A) was sown in a plot size of 20 m × 20 m having 60 cm × 10 cm spacing.

Both the protected and unprotected plots were divided into ten quadrates of size 1.2 m × 1.0 m. Two treatments each of 20.0 × 10.0 m were prepared.

- a) **Unprotected (plot):** The crop was kept free from insecticides and subjected to the natural occurrence of sucking pests in groundnut.
- b) **Protected (plot):** The crop was protected against sucking pests damage through the application of recommended insecticides (foliar spray of imidacloprid 48% FS 600 ml/ha).

### Method of recording observation

#### Pod yield (kg/ha)

At harvest, the yield of groundnuts from both protected and unprotected plots was noted for each quadrate, and the data was statistically examined. The yield rose in the protected plot compared to the unprotected plot (control), and the formula provided by Pradhan (1969) <sup>[7]</sup> was used to calculate avoidable loss from the groundnut's ultimate yield.

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$$\text{Yield increased (\%)} = 100 \times \left( \frac{T-C}{C} \right)$$

$$\text{Yield loss (\%)} = 100 \times \left( \frac{T-C}{T} \right)$$

Where,

T = Yield from treated Plot (kg/ha)

C = Yield from control Plot (kg/ha)

## Result

The data on pod yield of groundnut were obtained from protected and un-protected crop during the year of *Kharif* 2019.

The data presented in Table 1 revealed that the yield received from the protected plot 1883 kg/ha was significantly superior to the yield obtained from the un-protected plot 864 kg/ha. The yield increase in protected plot over un-protected plot was 1019 kg/ha. This showed a 117.93 percent increase in

yield over unprotected plot and 54.11 percent avoidable loss during *Kharif* 2019. Dabhade *et al.* (2012) [4] estimated the avoidable loss due to major sucking insect pests of groundnut to the tune of 48.57 percent in a pod. According to yield data in protected plots, there was a 94.45 percent increase in pod yield. Bhaskaran and Rajavel (2013) [3] estimated an avoidable loss of 26.71 percent in pods due to aphid, jassid and thrips in groundnut. The total yield loss due to insect pests of groundnut was up to 40.2 percent. Jayewar *et al.* (2017) [6] recorded that groundnut crop left unprotected is highly infested by pests and found significant yield reduction to the extent of 26.74 percent as compared to crop protected with chemicals. Ahir *et al.* (2018) [2] estimated the yield losses caused by insect pests of groundnuts. The mean yield data from both protected and unprotected plots, insect pests reduce yield by 35.71 percent. As a result, the most current findings closely align with the previous reports.

**Table 1:** Avoidable losses from sucking insect pest of groundnut

Sr. No.	Treatment	Pod yield (Kg/ha)	Yield loss (Kg/ha)	Increasing yield over Control (%)	Avoidable yield loss (%)
1	Protected	1883	----	117.93	----
2	Un-protected	864	1019	----	54.11
	S. Em. ±	489.56	----	----	----
	C.D. at 5%	1921.96	----	----	----
	C.V.%	7.96	----	----	----

## Conclusion

According to groundnut yield statistics collected in *Kharif* 2019, the protected plot yielded 1883 kg/ha, which was significantly greater than the unprotected plot's 864 kg/ha. 1019 kg/ha more was produced in the protected plot than in the unprotected crop. The percentage of groundnut yield that can be prevented because of aphids, jassids, and thrips is 54.11 percent. As a result, the yield of mustard grain protected from aphids, jassids, and thrips increased by 117.93 percent.

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