

# PEA APHID RESISTANCE

**Test accepted:** March 1991

**Pest:** *Acyrtosiphon pisum* (Harris)

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## PLANT CULTURE

### Greenhouse

**Container** ..... Flat (6 x 31 x 55 cm or similar size)

**Medium** ..... Soil mix (e.g., 8 parts sand; 3 parts peat; 3 parts perlite; 1.4% by vol. lime)

**Temp/Light** ..... 20 ± 4°C and 16+ hour daylength

**No. of Plants** ..... 60 to 70 per replicate in rows 3 cm apart

**No. of Reps** ..... 3 minimum

**Other** ..... Scarify seed and treat with fungicide to prevent damping-off. Sow seed 1 cm deep and cover with vermiculite.

## APHID COLONY

**Source** ..... Colony consisting of a blend of several field collections from area of adaptation, replenished annually

**Rearing** ..... Susceptible alfalfa in greenhouse (eg. Ranger, Caliverde, OK08)

**Temp/Light** ..... 20 ± 4°C and 16+ hour daylength

## INFESTATION PROCEDURE

**Age of Plant** ..... 1 day after emergence; cotyledon stage; count seedlings at time of infestation

**Method** ..... Sprinkle aphids onto seedlings

**Rate** ..... Minimum of 2 aphids per seedling; add aphids as needed to maintain high numbers

**Length** ..... 21 to 28 days. Spray with malathion or diazinon to terminate infestation. Rate plants 7 to 10 days after spraying.

## RATING

**1 Resistant** ..... Tall, normal trifoliolates

**2 Resistant** ..... Tall, minimal chlorosis

**3 Resistant** ..... Tall, with some chlorosis and wilting of trifoliolates

**4 Susceptible** ..... Short, with extensive chlorosis and wilting

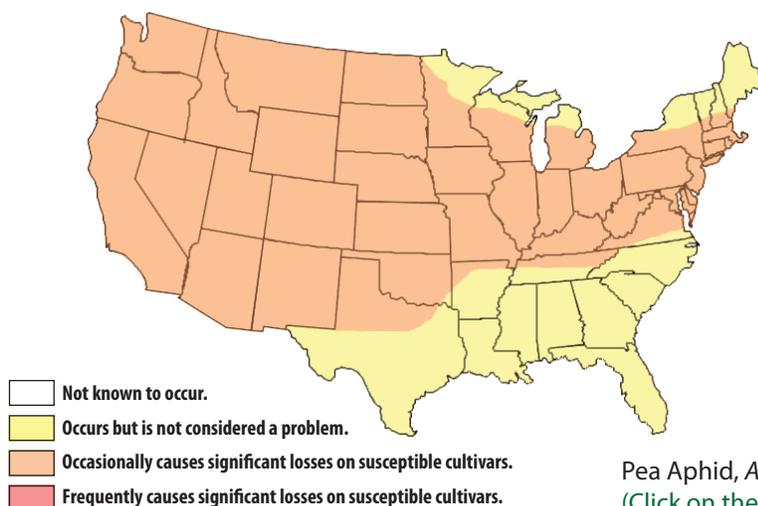
**5 Susceptible** ..... Dead (=total emerged - classes 1 to 4)

## CHECK CULTIVARS

	Approximate Expected Resistance (%)	Acceptable Range of Resistance (%)
<b>Resistant</b>		
CUF-101**	55	40-65
PA-1**	55	40-65
Kanza	45	35-55
Baker**	45	35-55
<b>Susceptible</b>		
Caliverde	5	0-10
Moapa 69**	5	0-10
Vernal**	5	0-10
Ranger	5	0-10

Values for resistant standards are totals of 1's, 2's and 3's. \*\*Checks used by AOSCA Alfalfa and Miscellaneous Legumes Variety Review Board for variety certification.

## DISTRIBUTION AND SEVERITY OF PEA APHID



Pea Aphid, *Acyrtosiphon pisum* (Harris)  
 (Click on the map above for a larger version.)

## CORRELATION TO FIELD REACTION

Field performance of alfalfa selected for resistance to pea aphid has conformed closely with expected results based on greenhouse evaluations.

## BIOTYPES

Several biotypes of pea aphid are known to exist and performance of resistant cultivars may vary depending upon the biotype(s) present. It may be advisable to test cultivars against aphid populations in areas where they will be grown.

## HELPFUL INFORMATION

The best procedure for collecting aphids from fields for colony establishment is tapping from infested stems. Fewer will be injured and chances of including natural enemies will be much reduced compared to sweeping. Field collected aphids should be held in isolation for 2 to 3 weeks to check for presence of parasites.

## ALTERNATIVE METHOD

Resistance evaluations may also be conducted in growth chambers. Planting and infestation procedures are the same as for greenhouse tests. Temperature should be maintained at  $20 \pm 1^\circ\text{C}$ , with relative humidity of 55 to 65% and 16 hour minimum daylength at 13,455 lux of light.

## REFERENCES

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