

# 1997 Supplemental Apple Pollen Orchard Study Willcox Arizona

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**Objective:** Evaluate "E-Z Pollen Duster" applications of supplemental pollen to enhance Granny Smith apple production.

**Location:** Headquarters Block, Valley Farms Ltd.,  
Willcox, Arizona

Production Conditions. The cultivar used in the study was fifteen year old Grand Spur Granny Smith / Seedling trees planted in four, acre long rows alternated with two adjoining rows of Delicious. This Block was also used last year and has a history of low yields due in large part to poor and later blooming Delicious pollinators. In '97, Delicious trees were estimated to be at 5% bloom on April 4th and at 20 % bloom on April 8th with only 50 % of the trees displaying any bloom. There were two frosts recorded in early April with temperatures in the low to mid twenties soon after the last pollen application that took out an estimated 50% more of the crop.

## The Supplemental Pollination Protocol: Three treatments over twelve acres of Granny Smith Apples.

1. 4 one-acre rows received 240 grams of pollen (60 g / acre) at 35% to 60% bloom on April 4th. Same 4 acres received 240 grams of pollen (60 g. / acre) at full bloom on April 8th.
2. 4 one-acre rows received 480 grams of pollen (120 g. / acre) at full bloom on April 8th.
3. 4 acres non-treated

Application Procedure: The weather was not the best at both treatment times with temperatures in the low 60's and a slight wind. From the back of a tractor drawn bin wagon approximately 175 trees per acre were treated easily and quickly with pollen applied by an "E-Z Power Duster" supplied by the Firman Pollen Company to which we attached a small gas powered motor. The pollen was applied to one side of the trees with the wind at our back. Our calculation showed we needed to apply about 6 trigger strokes to six areas of the tree for the single full bloom application of 120 grams of 1/2 strength dusting pollen per acre. For the split application (60 grams at 35% bloom and 60 grams at full bloom) 3 trigger strokes per tree were applied to three areas of the tree one in the top third and two across the bottom two thirds, which didn't seem like hardly enough pollen at the time.

Results: Harvest was about three weeks early due to codling moth problem. Under the worst of conditions, with a majority of the crop lost due to spring frost, pollen applications still showed positive results.

## Treatment

	Acres	Production (bushels)	Bus/Ac	% Incr. or (Decr.)%
Two Appls.	4	640	160	+28%
One Appl.	4	560	140	+12%0
Control	4	500	125	-----

**Conclusion:**

As in 1996, which was the best of conditions, the split application of supplemental pollen set the most fruit and the control set the least. The split application applied at 35% to 60% bloom and again at full bloom, again produced better results than the single application at full bloom. Because of the short receptivity of the individual apple flower, multiple applications allow a greater percentage of receptive flowers to benefit from the supplemental pollen.