

Cilantro/Coriander yield trials

2005 Season, Bixby Oklahoma

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Materials and Methods: Three cilantro varieties ('Santo', 'Slow Bolt' and 'Jantar') were evaluated in 2005 as an herb crop for Oklahoma. Cilantro is a term used for the green herb and coriander is a term used for seed produced after cilantro plants bolt, flower and set seed. *Spring planting - cilantro.* Seeds for 'Santo' and 'Jantar' were obtained from Johnny's seed company; 'Slow Bolt' was obtained from Seedway seed company. Plots were established by direct seeding with a Monosem air planter in beds of 4 rows, 12 inches apart at a total plot length of 200 feet on April 21. One replication of the three varieties was treated with 1.5 pts/acre Treflan ppi. Two more replicates were planted without herbicide treatment, one was harvested and allowed to regrow, bolt and set seed and the other was not harvested for herb, but allowed to bolt and set seed. Soil tests indicated adequate phosphorus and potassium, but very low nitrogen. Nitrogen was applied as urea at a rate of 40 lb N/ac just after planting. Herb harvests were conducted upon first sign of bolting on June 9. A Kincaid plot harvester, equipped with a 4.5 ft sickle-style cutting bar, a bat system for moving harvested material onto a 2.2 ft conveyer system which emptied into pre-weighed harvest lugs, was utilized to harvest all plots. Cutting height was set at 2 inches. Herb yield data is presented in Table 1. During the spring harvest 10 to 15 pounds of herb from each cultivar was divided into two approximately equal samples and either hydrocooled and spin dried within 2 hours after harvest, or held dry after harvest. Both samples were placed into a cooler at 45 F and held prior to transport to Stillwater lab facilities on ice. Cilantro was stored in a cooler at 38 F, and visual herb quality was assessed the day after harvest, and after one and two weeks of storage.

Spring planting – coriander. Plots were topdressed with nitrogen from urea on June 13, 4 days after herb harvest, at a rate of 40 lb N/ac. By June 21 all plots were strongly bolting and were allowed to set seed. Seed yield was estimated by harvesting six, three foot segments of seed stalks from plots designated for herb plus seed, and seed-only on August 4 with the Kincaid harvester, at a 4 inch cutting height. After harvest seed stalks were air dried and seed were manually removed, cleaned and weights were recorded. Coriander yield data from plants which were previously harvested for cilantro herb and allowed to regrow and set seed (Herb plus Seed), and from plants which were not harvested for cilantro herb (Seed only) is presented in table 2.

Fall planting – cilantro. A fall planting of cilantro was conducted with variety 'Santo' only, on July 26, August 9 and September 6. Plots were direct seeded and fertilized preplant as previously described. Since a previous observational study in the spring indicated that Dual herbicide exhibited no apparent damage for cilantro, and since Dual exhibits better weed control than Treflan, Dual 8E was applied post plant at a rate of 1.25 pts/ac. The first planting failed to emerge, probably due to too hot soil conditions, and was abandoned on August 9. The remaining plantings emerged to an acceptable stand and were topdressed with urea on September 21 at a rate of 30 lbs N/ac. The August 9 planting was harvested on October 13 as described for the spring harvest, and herb yields are shown in Table 1. Plants from the September 6 planting did not reach harvestable size before frost damage occurred and plots were abandoned.

Conclusions: Either Treflan applied ppi at 1.5 pts/acre or Dual 8E applied postplant at 1.25 pts/ac appear to have potential as herbicides for cilantro. Herb yield from the Treflan plots was not different from herb yield without herbicide in our spring planting, and an associated cilantro herbicide tolerance study showed zero apparent crop damage using Dual. It should be noted that the Dual rate was at the lower range of traditional application rates, and higher rates should be evaluated for possible phytotoxicity. Our spring and fall cilantro yields (Table 1) were well below other published yields, and we noted relatively small plant stature in all cultivars at harvest (4 to 6 inch plant height). Regardless of the low total yield, we did observe substantial differences in yield potential with 'Santo' and 'Slow Bolt' highest, and 'Jantar' consistently lowest in herb yield. We evaluated different cooling methods using cilantro produced in the spring harvest to establish whether hydrocooling was applicable for extending shelf life of fresh cilantro. Substantial crop damage was evident in hydrocooled samples even one day after treatment, and damage appeared to be related to the degree to which herb was spin dried after cooling. Damage appeared as brown leaf and stem discolorations and was worse for subsamples which contained more water after arrival in Stillwater. After one week of storage the wet samples had developed progressively more brown discolorations, affected tissues appeared slimy and storage was abandoned. Samples stored dry and without hydrocooling were acceptable in appearance up to the second week of storage, although some minor degreening was apparent in the two-week samples. Clearly, cilantro should not be hydrocooled to remove field heat due to the observed damage symptoms presumably caused by exposure to excess water prior to storage. Our fall plantings, using only the highest yielding spring cultivar ('Santo') resulted in only one harvest from three planting dates. The late July planting was abandoned due to very poor crop emergence, presumably caused by too hot soil conditions. The early August planting was harvested in mid-October but produced a lower yield than the spring planting. The early September planting did not achieve harvestable mass prior to frost damage,

but could have been harvested in late October. Further work on fall plantings should include more planting dates within the early to late August time frame to evaluate possible yield influence. Our coriander yields (Table 2), although lower than previously published, exhibited a similar ordering to the cilantro herb yields – ‘Santo’ was highest, followed by ‘Slow Bolt’ and then ‘Jantar’. Seed yield did not appear to be negatively influenced by a previous herb harvest. Seed yields were comparable for ‘Santo’ and ‘Slow Bolt’ from plants which were allowed to regrow, flower and set seed following an herb harvest (Herb plus Seed) versus plants which were never harvested for herb (Seed only). For ‘Jantar’, seed yields appeared to be higher for the “Herb plus Seed” versus the “Seed only” treatment. Based on our 2005 cilantro/coriander trials we can conclude that either ‘Santo’ or ‘Slow Bolt’ are better selections for production in Oklahoma than ‘Jantar’. It should be noted that one year’s trial can serve as a guideline, but that additional years trials will be needed to fully assess cilantro and/or coriander as crops to be recommended for Oklahoma.

Table 1. 2005 Cilantro Yields (lbs per acre) in Bixby, OK

Harvest Season	Planting Date	Harvest Date	Santo	Slow Bolt	Jantar
Spring	April 21	June 9	3118	2413	1634
Fall	August 9	October 13	2363		

Table 2. 2005 Coriander Yields in Bixby, OK

End Use	Planting Date	Harvest Date	Santo	Slow Bolt	Jantar
Herb plus Seed	April 21	August 4	363	234	212
Seed only		-----	328	221	83