

2003 Cultural and Varietal Experimentation with Lemongrass in Fresno, CA

Background:

Lemongrass is a perennial clump grass generally grown as an annual in this region. It is used as a food condiment in many Asian dishes and also used to make hot/iced tea. The Fresno County Ag Commissioner reported 68 acres of lemongrass worth over \$608,000 in 2000 .

The only species grown in Fresno is *Cymbopogon citratus*, propagated and planted vegetatively from individual stem pieces taken from the crown. *C. flexuosus* can be grown from seed and is sometimes planted in other countries. Planting takes place in March and April and not harvested until November thru February, depending on the price. In some cases it may grow another season in hopes of a better price. Plants are protected from the winter temperatures using plastic hoop houses to minimize frost damage. A typical planting is 6:1, that is 6 planted beds, then 1 skip for the hoop house. Plant populations average between 3,720 – 4,140 depending on the plant spacing.

Materials and Methods:

A study including six treatments was planted at the UC Kearney Research and Field Station in Parlier on April 29, 2003. A comparison between *C. citratus* and *C. flexuosus*, planting stock size, and the use of a black plastic mulch were among the treatments. Plants of *flexuosus* were started or obtained the previous year so that all treatments were planted using stems.

Treatments

1. *C. citratus*, large planting stock pieces
2. *C. flexuosus*, large planting stock pieces (source Seedman.com)
3. *C. flexuosus*, large planting stock pieces (source N.G.)
4. Black Plastic Mulch, *C. citratus*
5. *C. citratus*, small planting stock
6. *C. flexuosus*, small planting stock (source N.G.)

The trial consisted of 3 replications in a randomized complete block and each treatment was made up of 5 plants. Plants were spaced 3 feet apart down the row, and rows were 80” apart to facilitate harvest. A 15-15-15 fertilizer was broadcast prior to planting at 500 pounds per acre, and UAN 32 was applied through the drip every 60 days at 5 gal/acre. Plots were drip irrigated with two drip lines on each side of the bed.

Results:

The middle three plants of each treatment were harvested on November 25, 2003. Yield (lbs.), stem counts, and culls (lbs.) were recorded from each plant, and the total plot yield from 3 plants was reported below.

There were significant differences between treatments, $p \leq 0.05$, with *C. citratus* far outyielding (lbs. and number of stems) compared to *C. flexuosus*. There was not a significant difference comparing *C. citratus* in the bare ground to *C. citratus* in the black plastic. And the large

planting stock (stems) of citrus did significantly outyield the citrus planted from the smaller stems. The average plot yield for the large stems of citrus was 36 pounds and 256 stems compared to 33 pounds and 292 stems of citrus large stems in black plastic, and 27 pounds and 211 stems of citrus small stems. The specie flexuosus large stems (N.G.) yielded 8 pounds and 84 stems compared to 2.3 pounds and 38 stems using small stems for planting.

Discussion:

The results from this trial indicate that the highest producing specie of lemongrass to plant is *Cymbogon citratus* using large stems for planting stock, and can be planted in bare soil without black plastic mulch, or with the much if weed control is desired. The smaller stems used for planting stock of this specie resulted in reduced yields. Yields of citrus were 4-7 times higher than that of *C. flexuosus*, though this specie is noted for a more pungent lemony flavor.

With both species, yields were improved 23-33% by using the larger planting stock stems over the smaller.

Yield and Stem Counts of Lemongrass at the UC Field Station in Parlier, CA

treatment	3 plant yield (lbs.)	3 plant # stems	3 plant culls (lbs.)	Per plant (lbs.)	Per plant stems
C. citratus, large stem planting stock	35.7 a	256 ab	8.5	11.9	85
Black Plastic Mulch, C. citratus	33.0 ab	292 a	5.7	11.0	97
C. citratus, small stem stock	26.9 b	211 b	6.4	9.0	70
C. flexuosus, larges stem (N.G.)	8.0 c	84 c	5.9	2.7	28
C. flexuosus, large stem (Seedman)	5.7 c	58 c	3.9	1.9	19
C. flexuosus, small stems (N.G.)	2.3 c	37 c	8.2	.8	12
LSD = 0.05	7.6	47.4	ns		
CV	22.5	16.7			