

PERFORMANCE OF 21 ZUCCHINI AND 9 YELLOW SQUASH UNDER MID-SEASON CONDITIONS IN SOUTHWEST MICHIGAN

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OBJECTIVE:

To evaluate adaptability of 21 zucchini and 9 yellow squash varieties to southwest Michigan mid-season growing conditions.

SUMMARY:

Five zucchini ('Dividend-VP', 'CashFlow-VP', 'Payroll', SQN03000042 and SQN03000043) and five yellow squash (XPT1832, 'Sunray', 'Enterprise', 'Cougar' and RSQ0308) had significantly higher total yields than other entries. Total yields for zucchini ranged from 2441 half-bushels/acre ('Dividend-VP') to 914 hb/a (SQN03000044). Yellow squash total yields ranged from a 1497 hb/a (XPT1832) to 934 hb/a ('Fortune'). Yields were generally lower in 2003 due to severe virus infection.

METHODS:

Fertilizer: Prior to planting, 0-0-60, 33-0-0, and Solubor were broadcast and incorporated at 200, 150, and 10 pounds/acre, respectively. After planting 4-0-8-2(Ca) was applied through the drip irrigation at a rate of 1 pound of nitrogen/acre/day. Application of 4-0-8-2 began on 25 June and ended on 25 August, 2003.

Fumigation/Herbicide: Beds were fumigated at shaping and plastic laying with 350 pounds/Acre 67/33% Methyl Bromide/Chloropicrin. Prior to planting, Curbit 3E at 2 pints/acre was applied between the plastic.

Planting: Direct seeding was done 25 June, 2003 in raised, plastic mulched beds, 6" high and 24" wide. Beds were spaced on 5.5' centers and in row spacing was 24" (3960 plants/acre). The two species were placed in separate trials. The trials were planted and analyzed as completely randomized designs with four replications, eight plants/replication. Each plot was bordered by two guard plants.

Harvest and data collection: Harvest was conducted 12 times for zucchini; 1 August through 27 August, and 11 times for yellow squash; 4 August through 27 August. Fruit was graded at each harvest into small, medium, large and cull.

RESULTS:

The mid-season summer squash trial is planted to experience the virus pressure present during July and August. The 2003 virus situation was severe, resulting in large numbers of culled fruit (Tables 1 and 2) and an early end to harvest. Cucumber Mosaic Virus (CMV) and Watermelon Mosaic Virus 2 (WMV2) were most prevalent in the trial, with "tolerant" varieties exhibiting symptoms. The only variety not showing significant virus expression was the yellow squash XPT1832. XPT1832 also was the highest yielding yellow squash at 1497 half-bushels/acre (hb/a) and had the lowest number of culls at 68 hb/a (4% of total yield).

Yellow squash total yield ranged from 1497 hb/a (XPT1832) to 934 hb/a ('Fortune') (Table 1). 'Sunray', 'Enterprise', 'Cougar' and RSQ0308 were not significantly different from XPT1832. XPT1832 also had highest small (756 hb/a) and medium fruit (500 hb/a) yield. 'Enterprise' was highest in large (186 hb/a) and cull (389 hb/a) fruit.

Zucchini total yield ranged from 2441 hb/a ('Dividend-VP') to 914 hb/a (SQN03000044). 'Dividend' also had highest yield of small, medium and large fruit (608, 511 and 707, respectively). 'Dividend' was not significantly different in total yield than four other zucchini ('CashFlow', 'Payroll', SQN03000042 and SQN03000043). These four also had similar yield of small and large fruit, but 'Dividend' was significantly different than other trial entries for yield of medium fruit. 'CashFlow' had the highest yield of culls at 619 hb/a. 'Dividend' was not far behind at 615 hb/a. Nine other entries were similar in cull yield (Table 2). The high number of culled fruit can largely be attributed to the severity of the virus infection. 'Zucchini Elite', an entry having no virus tolerance, had the highest percentage of culled fruit at 40. However, virus-tolerant entries had similar levels. 'Spineless Beauty', another virus susceptible entry only had 17% culled fruit. Yellow squash had a high of 32% culled fruit (Table 1) for 'Enterprise'. 'Enterprise' is virus susceptible, but its total yield was not different than other tolerant entries such as XPT1832, 'Sunray' and 'Cougar'.

Table 1. Yield in half bushels/acre of nine yellow summer squash grown at the Southwest Michigan Research and Extension Center, Benton Harbor, Michigan. Plants were grown on raised, plastic mulched beds with drip irrigation. Spacing was 5.5 feet between rows and 2 feet in the row (3960 plants/acre). All seed was provided by Syngenta Seed Co.

| Variety | Total Yield | Yield Small | % Total | Yield Medium | % Total | Yield Large | % Total | Yield Cull | % Total |
|-----------------------|-------------|-------------|---------|--------------|---------|-------------|---------|------------|---------|
| XPT1832 | 1497 | 756 | 51 | 500 | 33 | 174 | 11 | 68 | 4 |
| Sunray | 1300 | 577 | 44 | 344 | 27 | 128 | 9 | 253 | 20 |
| Enterprise | 1245 | 362 | 26 | 344 | 27 | 186 | 15 | 389 | 32 |
| Cougar | 1230 | 435 | 36 | 311 | 25 | 172 | 14 | 313 | 25 |
| RSQ0308 | 1229 | 569 | 47 | 297 | 24 | 168 | 12 | 196 | 16 |
| Multipik | 1112 | 506 | 48 | 293 | 25 | 76 | 7 | 238 | 19 |
| RSQ0310 | 1024 | 497 | 49 | 212 | 21 | 129 | 12 | 187 | 18 |
| Prosperity | 1010 | 360 | 36 | 256 | 26 | 119 | 11 | 276 | 27 |
| Fortune | 934 | 497 | 53 | 250 | 27 | 62 | 7 | 152 | 13 |
| lsd _{0.05} = | 377 | 156 | 10 | 137 | 7 | ns | 8 | 137 | 9 |

Table 2. Yield in half bushels/acre of 21 zucchini grown at the Southwest Michigan Research and Extension Center, Benton Harbor, Michigan. Plants were grown on raised, plastic mulched beds with drip irrigation. Spacing was 5.5 feet between rows and 2 feet in the row (3960 plants/acre). All seed was provided by Syngenta Seed Co.

| Variety | Total Yield | Yield Small | % Total | Yield Medium | % Total | Yield Large | % Total | Yield Cull | % Total |
|-----------------------|-------------|-------------|---------|--------------|---------|-------------|---------|------------|---------|
| Dividend-VP | 2441 | 608 | 26 | 511 | 21 | 707 | 26 | 615 | 26 |
| Cash Flow-VP | 2224 | 557 | 24 | 393 | 18 | 656 | 28 | 619 | 30 |
| Payroll | 1981 | 518 | 25 | 398 | 20 | 581 | 29 | 483 | 26 |
| SQN03000042 | 1797 | 509 | 20 | 379 | 20 | 446 | 24 | 463 | 27 |
| SQN03000043 | 1764 | 702 | 39 | 330 | 18 | 478 | 27 | 255 | 15 |
| SQN03000041 | 1622 | 466 | 31 | 289 | 16 | 406 | 25 | 462 | 29 |
| SQN03000047 | 1617 | 413 | 26 | 204 | 13 | 611 | 36 | 388 | 25 |
| Declaration II | 1613 | 437 | 28 | 161 | 10 | 659 | 39 | 357 | 22 |
| Independence II | 1435 | 403 | 28 | 286 | 20 | 581 | 41 | 166 | 11 |
| Spineless Beauty | 1406 | 397 | 28 | 376 | 28 | 414 | 27 | 219 | 17 |
| Tigress | 1380 | 360 | 28 | 259 | 20 | 506 | 35 | 256 | 16 |
| SQN02000029 | 1357 | 482 | 36 | 292 | 23 | 321 | 24 | 262 | 18 |
| SQN03000040 | 1279 | 387 | 30 | 245 | 19 | 333 | 25 | 313 | 26 |
| SQN02000039 | 1271 | 326 | 26 | 286 | 21 | 275 | 23 | 385 | 31 |
| SQN02000050 | 1236 | 340 | 28 | 143 | 13 | 356 | 27 | 397 | 32 |
| Zucchini Elite | 1211 | 262 | 24 | 196 | 15 | 289 | 21 | 464 | 40 |
| SQN03000045 | 1112 | 214 | 21 | 107 | 10 | 344 | 33 | 446 | 36 |
| SQN03000046 | 1097 | 349 | 34 | 236 | 23 | 281 | 25 | 231 | 19 |
| SQN03000047 | 1032 | 271 | 26 | 74 | 7 | 379 | 37 | 307 | 30 |
| Senator | 1008 | 303 | 29 | 209 | 24 | 181 | 35 | 316 | 29 |
| SQN03000044 | 914 | 282 | 32 | 127 | 17 | 355 | 19 | 151 | 16 |
| lsd _{0.05} = | 697 | 213 | 11 | 172 | 9 | 339 | 13 | 284 | 16 |