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2016 Home Demonstration Garden

RFR-A1610

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Introduction

The 2016 Home Demonstration Gardens were planted as two interconnected themes: pantry garden and pollinator garden. Three-quarters of the garden was planted to the pantry garden, which focused on cultivar trials and donation of produce to local food pantries. The pollinator garden consisted mainly of annual flowers to encourage pollinators to visit as a nectar and food source.

Materials and Methods

Seeds of many vegetable and annual flowers were sown in late February and March 2016 at the Iowa State University Department of Horticulture greenhouses, Ames, Iowa. Seedlings were transplanted into cell packs approximately one month later. In early May, plants were distributed to the farms. Sweet potato slips were shipped out the first week of June. Due to damaged slips, two farms were unable to plant the original slips. In early June, additional slips were shipped to the farms to replace those that arrived in poor condition. Multiple species (beans, beets, cucumbers, summer squash, onions, potatoes, and carrots) were directly seeded into the gardens.

Each farm hardened off the transplants for approximately a week prior to planting. The ISU Research and Demonstration Farms participating in the 2016 Home Demonstration Garden trial and display included: Armstrong (Lewis, IA), Horticulture Research Station (Ames, IA), the Lyon County Fairgrounds - Northwest (Rock Rapids, IA), Muscatine Island (Fruitland, IA), Northern (Kanawha, IA), Northeast (Nashua, IA), and Southeast

(Crawfordsville, IA). All transplants and seeds were watered at planting and as needed throughout the growing season. Fertilizer and pesticides were applied based on growing conditions at each garden.

Pantry Garden. Thirteen vegetable species were chosen based on the donation requests from Iowa food pantries. Cultivar trials also were conducted by local Master Gardeners: four cultivars of green beans (Bush Blue Lake 274, Colter, Lewis, and Provider); two cultivars of beets (Merlin and Red Ace); four cultivars of carrots (Adelaide, Goldfinger, Mokum, and Royal Chantenay); two cultivars of cucumbers (Marketmore 76 and Sweet Slice); two cultivars of muskmelon (Athena and Superstar); five cultivars of onions (Alisa Craig, Copra, Red Wethersfield, Red Wing, and Yellow Stuttgarter); four cultivars of bell peppers (Declaration, Lady Bell, Red Knight, and Vanguard); four cultivars of Irish potatoes (Gold Rush, Kennebec, Red Pontiac, and Yukon Gold); two cultivars of summer squash (Dunja and Green Machine); four cultivars of sweet potatoes (Beauregard, Centennial, O'Henry, and Orleans); and four cultivars of tomatoes (Red Deuce, Red Knight, Pony Express, and Ultra Girl). One cultivar of broccoli (Gypsy) and one cultivar of cabbage (Stonehead) also were planted in the trials at each farm.

Pollinator garden. Species planted were chosen based on their effectiveness in encouraging pollinators to frequent the garden. The quadrant included: parsley, dill, fennel, *Melampodium* (Lemon Delight), four cultivars of *Salvia* (Evolution Violet, Fairy Queen, Summer Jewel Red, and Summer Jewel White), wild bergamot, *Agastache*, two types of borage (blue selection and white selection), *Tithonia* (Sundance), *Cleome serrulata*, two cultivars of *Echinacea*

(Cheyenne Spirit and PowWow Wild Berry), *Asclepias* (Silky Gold), two cultivars of cosmos (Rubenza and Xanthos), *Coreopsis* (Golden Roulette), *Gaillardia* (Arizona Sun), and *Helenium* (Dakota Gold).

Results and Discussion

Due to harsh growing conditions and a major storm during the beginning of the season, Muscatine Island lost much of its crop before harvest began. Late May to early June was also quite wet, which delayed planting at multiple locations.

Most of the farms lost their entire carrot and/or beet crops due to poor germination. One farm replanted another cultivar of carrots to compensate for this.

Some pest and disease issues also decreased the quantity of overall marketable produce at both Armstrong and the Horticulture Research Station, resulting in near total loss of tomatoes and cucurbits, respectively.

Regardless of environmental and pest impacts, a total of 12,483.9 lb of fresh vegetables were produced and 9,283.8 lb of fresh produce was donated to local food pantries. With some gardens having crop failure, other cultivars were planted to compensate for the loss. The total marketable weight of fresh produce was 9,367.1 lb. Table 1 illustrates the totals for all seven gardens.

Master Gardeners (except at the Southeast Research and Demonstration Farm) collected four types of data for each cultivar in the pantry garden: total lb, total number, marketable lb, and marketable number. Average weights for peppers, potatoes, and tomatoes are reported in Tables 2-4 below.

Table 2 shows the average weight (lb) of the four pepper cultivars at each farm. Overall, Declaration and Vanguard both averaged 0.26 lb/marketable pepper, whereas Lady Bell and Red Knight averaged 0.24 and 0.25 lb, respectively (overall averages not shown).

Table 3 and Table 4 show the average weight (lb) of the four potato and four tomato cultivars at each farm, respectively. Pony Express tomato is significantly smaller than the others in weight because it is a plum-like cultivar rather than a slicer cultivar. Although the Gold Rush, Kennebec, and Red Pontiac potato cultivars are not significantly different from one another (0.43, 0.40, and 0.43 lb), Yukon Gold has an average weight of 0.29 lb collectively across all farms (overall averages not shown).

The pollinator flowers performed well across all farms. The blue borage outperformed the white borage at most locations. During the field days, monarch larvae were found on annual milkweed (*Asclepias* Silky Gold) at multiple locations. Giant swallowtail larvae also were found on the dill and parsley. The *Tithonia* (Sundance) was a showstopper at most of the gardens with its large, bush-like appearance and striking orange flowers.

Acknowledgements

Thanks to the farm superintendents, staff, and Master Gardeners at each research farm for planting, harvesting, collecting data, donating produce, and hosting a field day.

Table 1. Total weight and total marketable lb of produce harvested from each of the seven ISU Research and Demonstration Farms.

	ARF*	HRS	MIRF	NRF	NERF	LCFG	SERF	Overall total
Total	2,392.2	1,064.7	1,094.1	1,217.8	3,674.2	1,603.4	1,437.5	12,483.9
Marketable	1,775.5	791.5	543.3	931.2	3,115.9	1,055.7	1,154.0	9,367.1

*ARF = Armstrong Research Farm, Lewis; HRS = Horticulture Research Station, Ames; MIRF = Muscatine Island Research Farm, Fruitland; NRF = Northern Research Farm, Kanawha; NERF = Northeast Research Farm, Nashua; LCFG = Lyon County Fair Grounds, Rock Rapids; SERF = Southeast Research Farm, Crawfordsville.

Table 2. Average weight (lb) of marketable peppers (Declaration, Lady Bell, Red Knight, and Vanguard) harvested at seven ISU Research and Demonstration Farms.

	Armstrong	Horticulture	Muscatine	Northern	Northeast	Lyon County	Southeast
Declaration	.29	.21	.29	.20	.18	.29	.39
Lady Bell	.26	.18	.23	.19	.26	.29	.27
Red Knight	.30	.19	.32	.22	.14	.26	.35
Vanguard	.30	.21	.23	.19	.21	.30	.37

Table 3. Average weight (lb) of marketable potatoes (Gold Rush, Kennebec, Red Pontiac, and Yukon Gold) harvested at seven ISU Research and Demonstration Farms.

	Armstrong	Horticulture	Muscatine*	Northern	Northeast	Lyon County	Southeast*
Gold Rush	.36	.28	0	.26	.71	.52	0
Kennebec	.40	.33	0	.32	.53	0	0
Red Pontiac	.57	.36	0	.35	.44	.43	0
Yukon Gold	.28	.20	0	.25	.30	.43	0

*Crops lost due to severe weather.

Table 4. Average weight (lb) of marketable tomatoes (Mountain Fresh, Pony Express, Red Deuce, and Ultra Girl) harvested at seven ISU Research and Demonstration Farms.

	Armstrong	Horticulture	Muscatine	Northern	Northeast	Lyon County	Southeast
Mountain Fresh	.49	.46	.41	.48	.44	.41	.55
Pony Express	.23	.23	.22	.22	.23	.21	.26
Red Deuce	.61	.41	.57	.51	.42	.30	.57
Ultra Girl	.29	.34	.23	.32	.33	.23	.36