

Organic Systems Vegetable Trial 2009 Plot Treatments and Yields

Entry Point 1: Main crop was fall cabbage

Cabbage transplants were grown in an organically-managed plastic greenhouse at Cornell. They were seeded on June 12 into MacEnroe light potting soil mix in #72 flats. No fertilizer was applied. Plants were hardened off starting July 7. The variety grown was Farao. All plots were irrigated on 7/17 and 8/18. Cabbage yield data was collected on Oct. 8. Crop was fully removed by about Oct 15. No sprays were applied to cabbage in 2009. Cabbage and V3 oats and peas were rotary mowed on 11/2.

1.1. System 1 (spinach followed by late cabbage)

Spinach	Marketable lb per acre
Renegade	2,850
Cabbage	
Farao	63,476

These plots were bare over winter, untilled after 2008 squash harvest. They were rotovated on April 24. They were then roller-harrowed and seeded with inoculated Sugar Sprint peas on April 28 with a two-row JD 71 seeder. The peas were tineweeded with an 8' Rabewerk tineweeder on May 6 and May 12, but there was a poor stand. They were tilled under with a springtooth harrow on 5/18. On 5/19, the same plots were cultipacked then seeded to Renegade spinach with a 3-row Planet Junior seeder mounted on an AC G tractor, @13 seeds/ft. These were cultivated on 6/8 and hand hoed on 6/15. Data harvest was on June 25, and all spinach was removed from the plots by 7/1. Plots were springtooth harrowed on 7/7. After application of 1.34 tons per acre of Kreher's chicken manure compost (4.6-3.5-2.0), plots were rotovated (deeper than usual) and cultipacked on July 13. Cabbage was transplanted the next day. Plots were cultivated on 7/30 and Aug. 12, and also hand hoed on Aug. 13-25 with stirrup hoes.

1.2 System 2 (oats and peas, then late cabbage)

Cabbage	Marketable lb per acre
Farao	52,684
Spring Cover Crop	(lb/acre)
Oats	2362
Peas	2355

Plots were planted to Austrian winter peas on 10/7/08 after squash harvest. However, winter survival was poor and the peas were tilled under with a springtooth harrow on 4/27. They were planted to Esker oats (85#/A) and Arivka forage peas (123#/A) the same day. These grew

strongly, producing 2362 lb/acre and 2355 lb/acre, respectively, before they were flail mowed on 7/1. This biomass was moldboard plowed under the same day. After application of 0.4 tons per acre of Kreher's chicken manure compost, plots were rotovated (deeper than usual) and cultipacked on July 13. Cabbage was transplanted the next day. Plots were cultivated on 7/30 and Aug. 12, and also hand hoed on Aug. 13-25 with stirrup hoes.

1.3. System 3 (rye, fallow, soybeans, oats + peas)

These plots had rye over the winter. They were rotovated on May 8, then springtooth harrowed on May 18, June 2, and 6/23. Later on 6/23, 10F8 soybeans were drilled @ 100 lb/acre. However, these were very weedy and were rotovated under on 7/24. The plots were springtooth harrowed on 8/14, then drilled to Keuka oats (75#/A) and Maxum peas (150#/A).

Spring Cover Crop	(lb/acre)
Rye	531
Fall Cover Crop	
Oats	1863
Peas	2034

1.4 System 4 (oats and peas, then late cabbage on ridges)

Cabbage	Marketable lb per acre
Farao	45,439
Spring Cover Crop	(lb/acre)
Oats	2349
Peas	3402

Plots were planted to Austrian winter peas on 10/7/08 after squash harvest. However, survival was poor and ridges were scraped on 4/27. They were planted to Esker oats (85#/A) and Arivka forage peas (123#/A) the same day, and re-ridged the next. These grew strongly, producing 2349 lb/acre and 3402 lb/acre, respectively, before they were mowed on 7/6. They received a double scraping on 7/15. Kreher's chicken compost @ 0.4 tons/acre was applied to the scraped surface the same day, then the cabbage was transplanted. Plots were cultivated on 8/4, 8/12, and 8/25, and also hand hoed on Aug. 13-25 with stirrup hoes.

2009 Organic Cropping System Project Marketable Vegetable Yields, Entry Point 1

System	Farao Cabbage Pounds per acre	Renegade Spinach Pounds per acre
1	63,476	2,850
2	52,684	-
3	-	-
4	45,439	-

Entry Point 2: Main crop was Delicata winter squash

Organic Delicata squash seed was planted in 50 cell flats in a certified organic greenhouse on 5/11 and 12. Trap crop organic Dark Green Zucchini had been planted the same way on 5/7. The trap crop plants were transplanted to the field on 5/26-27, and the main crop Delicata on 6/2-5. System 1 was transplanted into black plastic and the others into pre-made furrows. All were irrigated on 6/5, 7/17, and 8/18. The trap crop was sprayed with Pyganic 5.0 EC and Purespray Oil using a backpack sprayer on the evening of 6/16. Surround (a repellent) was sprayed on the main crop earlier that day. The trap crop was tilled under on 7/13. Milstop was sprayed against powdery mildew on 8/13 and 8/26. Data harvest was on 9/14-16, and the crop was removed from the field by 9/22.

2.1 System 1 (squash)

Winter Squash	Total Yield (lb/acre)
Delicata	11002
Spring Cover Crop	(lb/acre)
Rye	1371

Rye covered the plots over winter. This was flail mowed on 5/8, rotary mowed on 5/26, and moldboard plowed on 6/1. Kreher's chicken manure compost was applied later the same day at 1.34 T/A. Plots were disced and cultipacked on 6/2, and plastic was laid on 6/4. The area between the plastic was cultivated on 6/22, then again on 7/7. Hand hoeing along the plastic edges was done on 7/15. Otherwise the crop was grown as above. Plastic was removed around 10/15. No fall cover crop was planted.

2.2 System 2 (squash)

Winter Squash	Total Yield (lb/acre)
Delicata	7909
Spring Cover Crop	(dry lb/acre)
Wheat	5097
Hairy Vetch	1278

Wheat plus hairy vetch covered the plots over winter. This was rotary mowed on 5/26 and moldboard plowed on 6/1. Kreher's chicken manure compost was applied later the same day at .27 T/A. Plots were disced, cultipacked, and rows were marked on 6/2. Areas between rows were cultivated on 6/17. The straddled rows (and middles) were cultivated on 7/6-7 and 7/22. Hand hoeing around the plants was done on 6/17. Otherwise the crop was grown as above. After harvest, plots were rotovated shallowly on 10/15.

2.3 System 3 (squash followed by late rye)

Winter Squash	Total Yield (lb/acre)
Delicata	12156
Spring cover crop	(dry lb/acre)
Red clover	906

Medium red clover covered the plots over winter. This was shallowly rotovated on 5/8. Plots were springtooth harrowed on 5/18. Kreher's chicken manure compost was applied on 6/1 at .67 T/A. The plots were harrowed again, cultipacked, and rows marked on 6/2. Areas between rows were cultivated on 6/17. The straddled rows (and middles) were cultivated on 7/6-7 and 7/22. Hand hoeing around the plants was done on 6/17, 7/15, 8/12, and 9/4. Otherwise the crop was grown as above. After harvest, plots were rotovated shallowly on 9/21. Plots were again rotovated to flush and kill chickweed on 10/15 then springtooth harrowed on 10/26. Rye was broadcast at 150 lb/acre and rolled in with a cultimulcher (tines up) the same day.

2.4 System 4 (ridge till squash)

Winter Squash	Total Yield (lb/acre)
Delicata	12820
Spring Cover Crop	(dry lb/acre)
Hairy vetch (+ fall oats)	3100

Hairy vetch and dead oats covered the plots over winter. This was rotary mowed on 5/26. Kreher's chicken manure compost was applied on 6/1 at .27 T/A. Ridges were scraped and rows were marked on 6/2. Areas between rows were cultivated on 6/17. The straddled rows (and middles) were cultivated on 7/6-7 and 7/22. Hand hoeing around the plants was done on 6/17. Otherwise the crop was grown as above. After harvest, plots were re-ridged on 10/27.

2009 Organic Cropping System Project Marketable Vegetable Yields, Entry Point 2

System	Delicata Squash Pounds per acre
1	11,002
2	7,909
3	12,156
4	12,820