



Mizuna Variety Trial

In a Nutshell:

- Mizuna is a mild and peppery brassica green. Historically cultivated in Japan, it often makes an appearance on Midwestern farms as a cut salad green, either alone or in a mix.
- Carmen Black has been growing an all-mizuna salad mix consisting of five varieties mixed together. She was unable to identify which varieties in the mix were bolting early, so she decided to conduct a variety trial to individually test which of the ten mizuna varieties sold by Johnny's Selected Seeds performed well as cut greens in her high tunnel system.

Key Findings

- Of the ten varieties that were seeded, Mizuna and Red Carpet bolted before transplant. Tokyo Bekana bolted after transplant to an extent that it was also not harvestable.
- Red Splendor, Central Red, and Red Giant all bolted before harvest but were still tender enough to be sold with bolted stems removed.
- There were no significant differences in the harvested weight of the seven varieties that were harvested. Black concluded that in the future, she will try a mix of Scarlet Frills, Golden Frills, Purple Mizuna, Red Kingdom and Red Giant.

BACKGROUND

Carmen Black has previously grown an all-mizuna cut greens salad mix consisting of five mizuna varieties for her customers. Some of the varieties included in the mix often bolted before harvest, but she was unable to pinpoint which varieties they were. So, she decided to conduct a trial investigating how each of these five mizuna varieties in addition to the remaining five varieties available through Johnny's Selected Seeds performed when grown individually as cut salad greens in her high tunnel system. She was most interested in which varieties bolted before the leaves were a harvestable size and whether any varieties yielded significantly more than others.

METHODS

Design

Trial management details are shown in **Table 1**. Mizuna seedlings were started in soil blocks in a greenhouse prior to transplant to a high tunnel. Black established a replicated experiment with four replicates for each of the eight varieties that did not bolt prior to transplant size: 8 varieties × 4 replications = 32 plots total. An example of the experimental layout is shown in **Figure A1**.

Measurements

Black and her crew noted which varieties bolted and when they bolted. They measured weight at harvest of each of the seven varieties that were harvested.



Carmen Black's mizuna variety trial just before harvest. Bolting and flowering is apparent for some of the varieties. Photo taken May 14, 2024.

Cooperators

Carmen Black, Sundog Farm; Solon, IA

Funding

Iowa Department of Agriculture and
Land Stewardship



Carmen Black's replicated and randomized mizuna variety trial at planting. Photo taken April 18, 2024.

Data analysis

To evaluate the effect of treatment on mizuna yield, we used a Kruskal-Wallis test that tests the influence of treatment without assuming normality at the 95% confidence level. We followed this test with a pairwise Wilcoxon test to determine whether there were significant differences between yields of individual varieties. If the yields are statistically significantly different, we would expect such a difference to occur 95 times out of 100 under the same conditions. We could make these statistical calculations because Black's trial design involved replication and randomization of the varieties (**Figure A1**).

RESULTS AND DISCUSSION

Black found that none of the harvested varieties yielded significantly higher than any of the others (**Table 2**). Central Red and Red Splendor started bolting around May 14, which forced Black to harvest. "I wanted to harvest the trial before all the varieties bolted. If I left some of the remaining varieties to grow another week, their weight could potentially have been higher."

Black feels that she gained a lot of valuable information about bolting tendencies of different varieties from this trial. "I certainly learned which varieties not to use in the future. Two of



Central Red (left) and Red Splendor (center) mizuna both bolted before harvest, but the greens were still large and tender enough to be sold. However, Tokyo Bekana (right) also bolted and was not marketable at harvest time. Photos taken May 14, 2024.

TABLE 1: Mizuna trial management at Carmen Black's in 2024.

Varieties Tried	Central Red, Golden Frills, Mizuna, Purple Mizuna, Red Carpet, Red Giant, Red Kingdom, Red Splendor, Scarlett Frills, Tokyo Bekana
Seeding	Mar. 7 5 seeds/soil block
Transplanting	Apr. 18 16 soil blocks planted per replicate
Irrigation	Drip, 2x/week as needed
Harvest	May 14

TABLE 2: Yields of the seven varieties of mizuna that were harvested at Carmen Black's in 2024. "-" indicates that the variety was not harvested due to bolting.

VARIETY	YIELD (oz.)	BOLTED?
Central Red	15.0	Before harvest
Golden Frills	18.4	No
Mizuna	-	Before transplant
Purple Mizuna	18.6	No
Red Carpet	-	Before transplant
Red Giant	17.8	No
Red Kingdom	15.9	No
Red Splendor	21.4	Before harvest
Scarlet Frills	17.5	No
Tokyo Bekana	-	Before harvest
Significantly different?	No	

the varieties I had been using in a cut mizuna mix were some of the first to bolt! So, the trial helped me identify which varieties were not working in that mix and which varieties I should try moving forward." Black plans to try a mix of Golden Frills, Purple Mizuna, Red Giant and Red Kingdom in the future. She will include Central Red despite the fact that it bolted a bit early because it yielded well and was still tender despite bolting.

APPENDIX – TRIAL DESIGN AND WEATHER CONDITIONS

CR	GF	RK	PM	SF	RG	CR	TB	GF	PM	SF	RK	SF	RK	TB	RS
TB	SF	RG	RS	GF	PM	RK	RS	RG	CR	RS	TB	PM	GF	RG	CR
REP 1				REP 2				REP 3				REP 4			

FIGURE A1. Experimental design used by Carmen Black.

Black

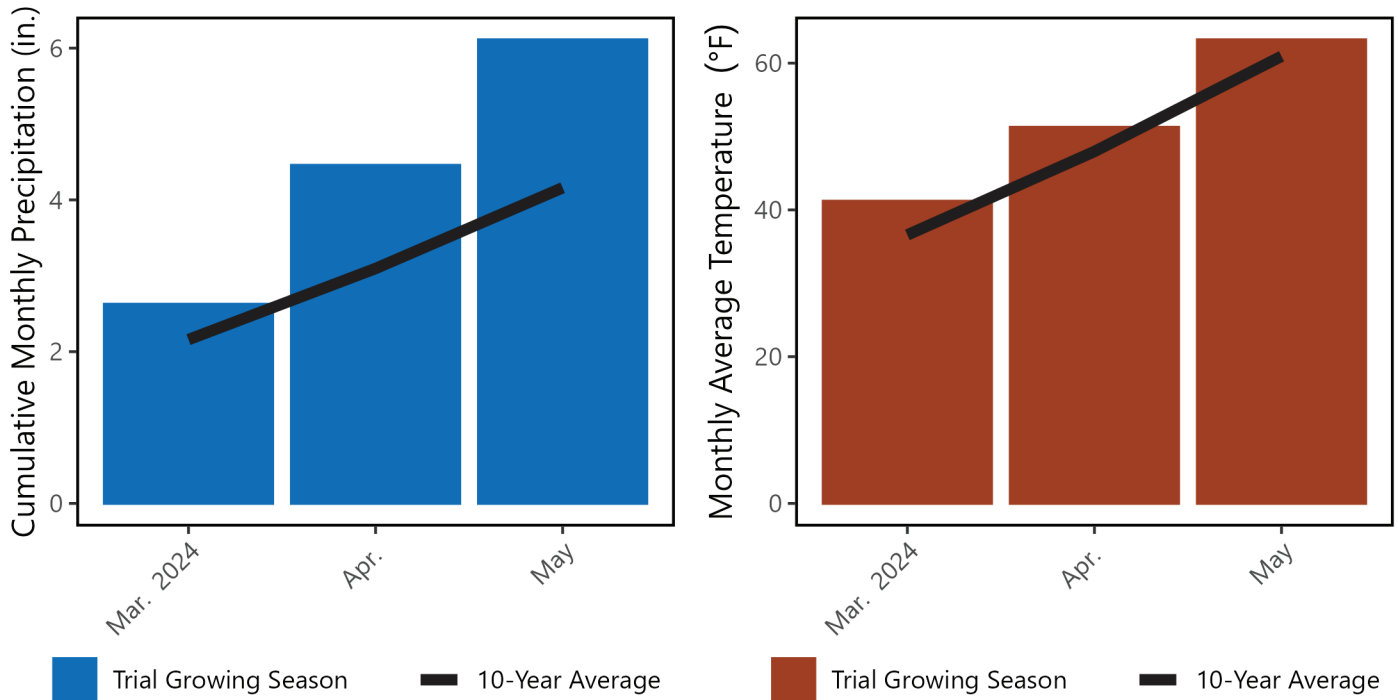


FIGURE A2. Monthly precipitation accumulation (left) and mean temperature (right) at Solon, IA. [1]

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