MT Pockets 2018 Soybean Grain Yield Report

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Project Summary

In the past year, work has focused on soybean yield data as part of a regional project to evaluate soil type-specific yield potentials on individual farms and to develop a yield potential database for soybeans, which currently does not exist. Yield monitor data allow for the evaluation of both spatial and temporal yield variability for all fields, soil types, and management zones within a specific farm. This information will help identify areas of high yield potential, areas of stable yield versus variable yield over time. The latter is useful for the development of management zones that can lead to increased yield and yield stability over time. When three years or more of data are available, the yield data can then be used to develop yield stability maps for farmers for improvements in nutrient management.

This report shows the yield for (1) the farm per year of data submitted, (2) each of the fields for which we received yield records in the current year, and (3) yields per soil type within a field (current year as well). Calculated acres per field were derived from actual cleaned data points and hence will not match with the overall field acres based on the boundary file. Yield data are then grouped by soil type to generate “frequency distributions or histograms” so averages per soil type can be determined.

We are grateful for your submission of farm yield data to us for the purpose of creating a yield potential database for soybean. Your data are added to a larger and growing database of yield values for specific soil types and once we have sufficient amounts of yield data, yield potentials per soil type can be derived. This project will be strengthened by large participation by farmers across the state and is expected to grow in size over time as funding is secured and more farms participate.

2018 Yield Data Summary

Yield monitor soybean data from 13 fields harvested in 2018 were analyzed. The tables and figures that follow present annual yield (bu/acre) at the whole farm level; yield at the field level and soil type within field level (presented in Appendix I and II); and yield at soil type level within the farm (presented in figure at the end). In Appendix II, predominant or major soil for a particular field is the one with the largest area shown in the last column.

In total, 304 acres were analyzed in 2018, based on the whole field dataset that we received. Once headlands were removed, 223 acres remained. Because fields vary greatly in size, an area weighted Soybean grain yield was calculated to represent the whole farm yield value. Based on the whole field dataset for the farm, the area weighted average farm yield was 61.3 bu/acre (whole fields including headlands) and 63.3 bu/acre (whole field excluding headlands). Yield on a per field basis ranged from 36.2 to 70.7 bu/acre for WF and from 39.0 to 72.5 bu/acre for WFNH.

Table 1: 2018 Soybean grain yield (bu/acre) and area summary for the whole farm. Area weighted averages across 13 fields. WF=Whole field with headlands. WFNH=Whole field without headlands.

Year	Average yield WF	Area WF	Average yield WFNH	Area WFNH	Headland impact on WF average yield (WF-WFNH)	Area headland
	bu/acre	acres	bu/acre	acres	bu/acre	acres
2018	61.3	304	63.3	223	-2.0	81

Appendix I.

2018 Soybean grain yield (bu/acre) and area summary by field. WF=Whole field with headlands. WFNH=Whole field without headlands included.

Field	Area (as planted)	Yield WF	Area WF	Yield WFNH	Area WFNH	Yield Difference (WF minus WFNH)	Area Head-land
	acres	bu/acre	acres	bu/acre	acres	bu/acre	acres
Lakeville54		54.2	17.8	56.5	11.4	-2.3	6.4
Lakeville_55		36.2	8.5	39.0	6.4	-2.8	2.1
Lakeville_56		41.6	2.1	43.8	2.0	-2.1	0.1
Lakeville_57		62.4	5.9	61.5	5.1	0.9	0.9
Lakeville58		52.2	24.5	53.3	18.7	-1.1	5.8
Lakeville_59		54.8	4.3	59.6	2.6	-4.8	1.7
Wellman9		70.7	13.8	72.5	8.4	-1.8	5.4
Wellman2-5		64.5	92.3	64.9	75.7	-0.5	16.6
Whitney_26		51.8	5.9	59.0	2.8	-7.2	3.1
Whitney27		60.2	46.6	64.4	30.3	-4.2	16.3
Whitney28		63.3	30.2	65.6	23.3	-2.4	6.9
Whitney29		68.0	35.9	70.8	24.7	-2.7	11.3
Whitney30		62.5	16.4	64.8	11.6	-2.3	4.8

Appendix II.

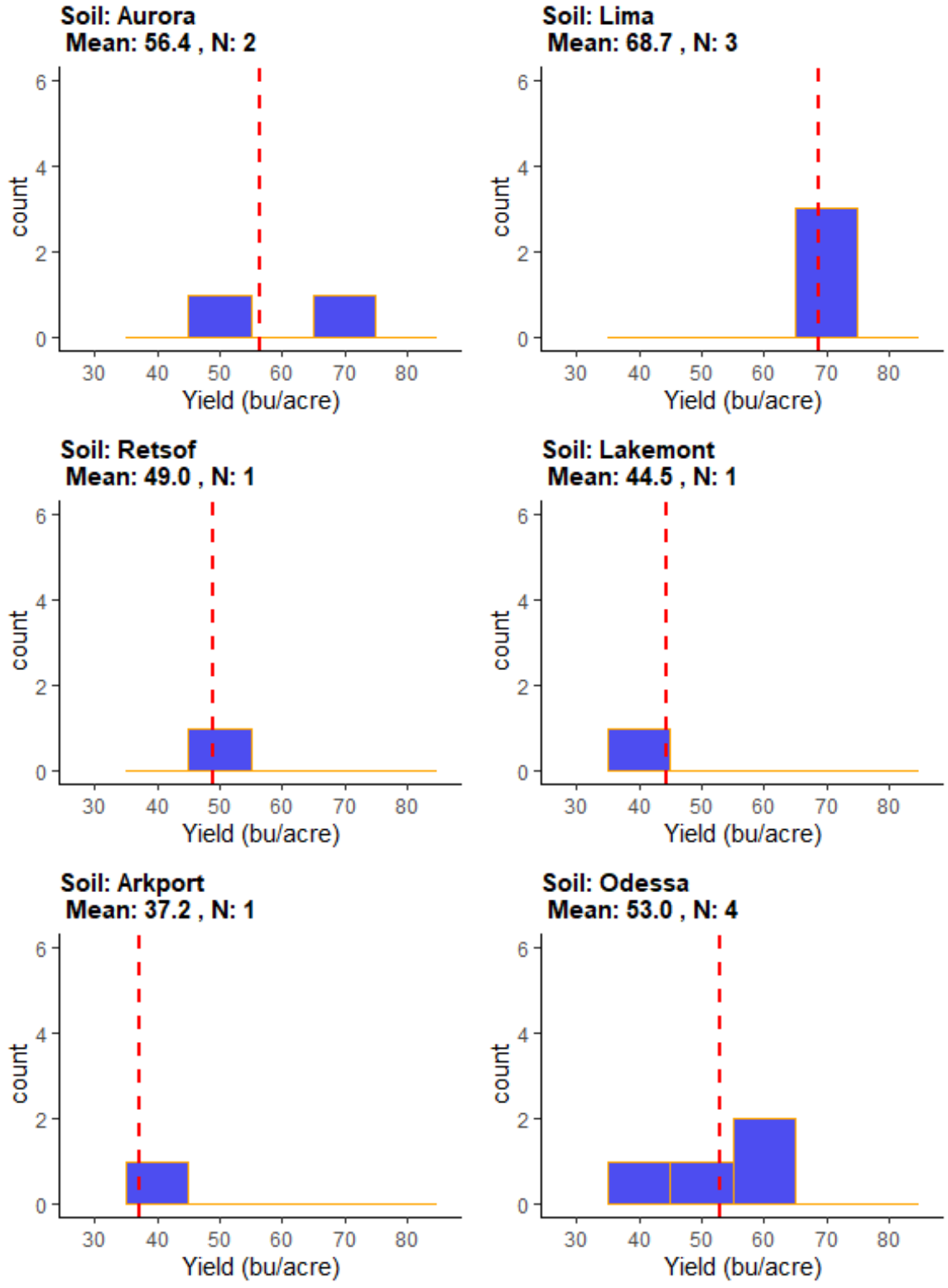
2018 Soybean grain yield (bu/acre) by soil type. Predominant soil type of each field is also listed in the table.

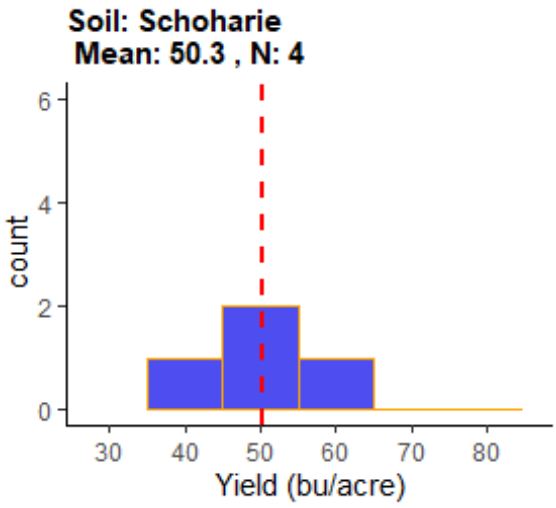
Field	Soil type	Predominant soil type	Yield soil type	Area soil type
			bu/acre	acres
Lakeville 54	Aurora	Aurora	47.6	9.0
Lakeville 54	Lima	Aurora	66.1	1.6
Lakeville 54	Retsof	Aurora	49.0	0.7
Lakeville_55	Lakemont	Arkport	44.5	0.8
Lakeville_55	Arkport	Arkport	37.2	3.1
Lakeville_55	Odessa	Arkport	38.3	0.6
Lakeville_55	Schoharie	Arkport	40.5	1.6
Lakeville_56	Schoharie	Schoharie	45.9	1.7
Lakeville_57	Odessa	Odessa	60.5	3.4
Lakeville_57	Schoharie	Odessa	63.6	1.6
Lakeville 58	Odessa	Odessa	54.0	14.0
Lakeville 58	Schoharie	Odessa	51.2	4.7
Lakeville_59	Cazenovia	Ontario-Hilton	58.1	0.4
Lakeville_59	Odessa	Ontario-Hilton	59.1	0.6
Lakeville_59	Ontario-Hilton	Ontario-Hilton	60.2	1.6
Wellman 9	Lima	Lima	73.9	6.5
Wellman 9	Honeoye	Lima	59.4	0.5
Wellman 9	Palmyra	Lima	76.0	1.1
Wellman 2-5	Lima	Conesus	66.2	5.3
Wellman 2-5	Appleton	Conesus	66.5	1.2
Wellman 2-5	Conesus	Conesus	64.5	19.4
Wellman 2-5	Kendaia	Conesus	57.6	7.4
Wellman 2-5	Lansing	Conesus	65.8	19.1
Wellman 2-5	Palmyra	Conesus	67.1	15.5
Wellman 2-5	Phelps	Conesus	66.8	7.8
Whitney_26	Palmyra	Phelps	54.4	0.5
Whitney_26	Phelps	Phelps	61.0	2.0
Whitney 27	Conesus	Phelps	62.7	2.7
Whitney 27	Kendaia	Phelps	69.9	4.2
Whitney 27	Lansing	Phelps	64.1	1.5

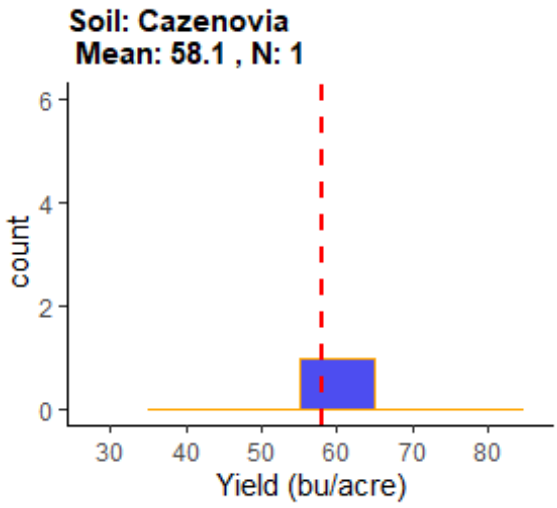
Field	Soil type	Predominant soil type	Yield soil type	Area soil type
			bu/acre	acres
Whitney 27	Palmyra	Phelps	61.6	3.6
Whitney 27	Phelps	Phelps	63.5	15.3
Whitney 27	Burdett	Phelps	65.6	1.6
Whitney 27	Niagara	Phelps	60.2	1.1
Whitney 28	Kendaia	Burdett	66.9	6.4
Whitney 28	Lansing	Burdett	68.3	1.2
Whitney 28	Burdett	Burdett	65.3	15.7
Whitney 29	Lansing	Lansing	71.5	17.9
Whitney 29	Burdett	Lansing	72.4	6.2
Whitney 30	Aurora	Aurora	65.1	4.3
Whitney 30	Appleton	Aurora	61.0	0.9
Whitney 30	Lansing	Aurora	65.4	1.6
Whitney 30	Nunda	Aurora	63.0	1.4
Whitney 30	Alden	Aurora	64.4	1.7
Whitney 30	Fredon	Aurora	68.3	1.4

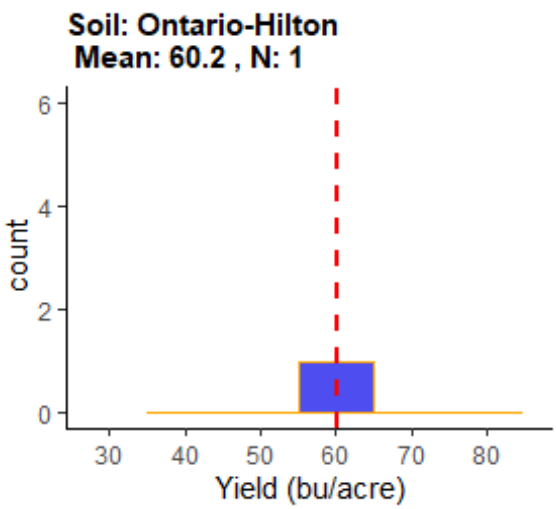
Appendix III.

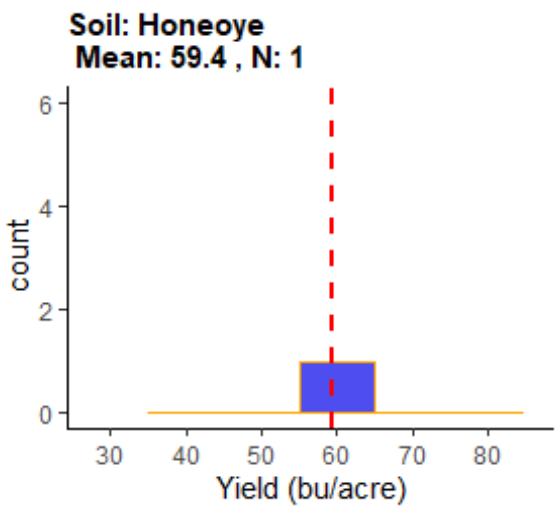
Multi-year histograms of yield for each soil type represented on the farm.

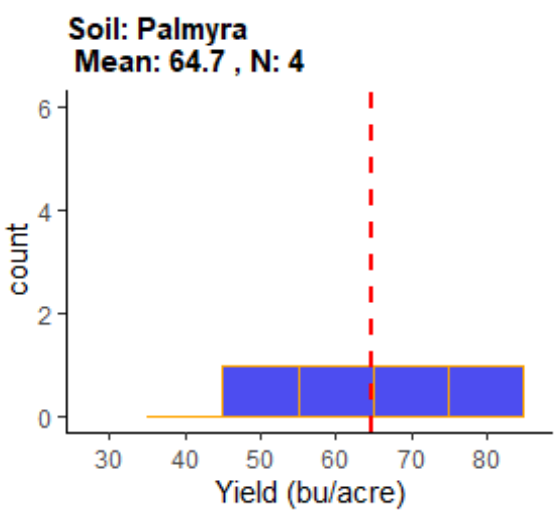


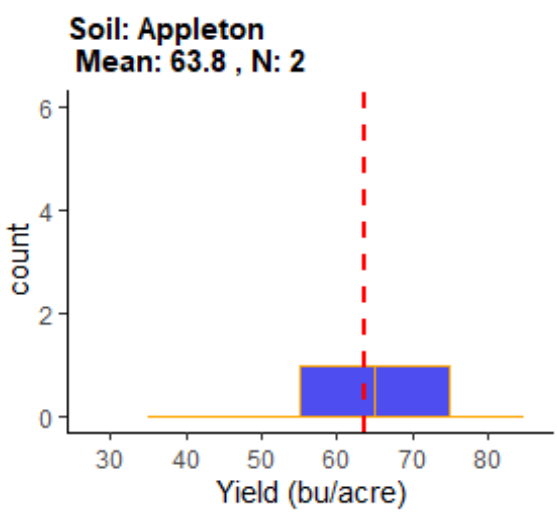

Soil: Schoharie
Mean: 50.3 , N: 4
count
Yield (bu/acre)

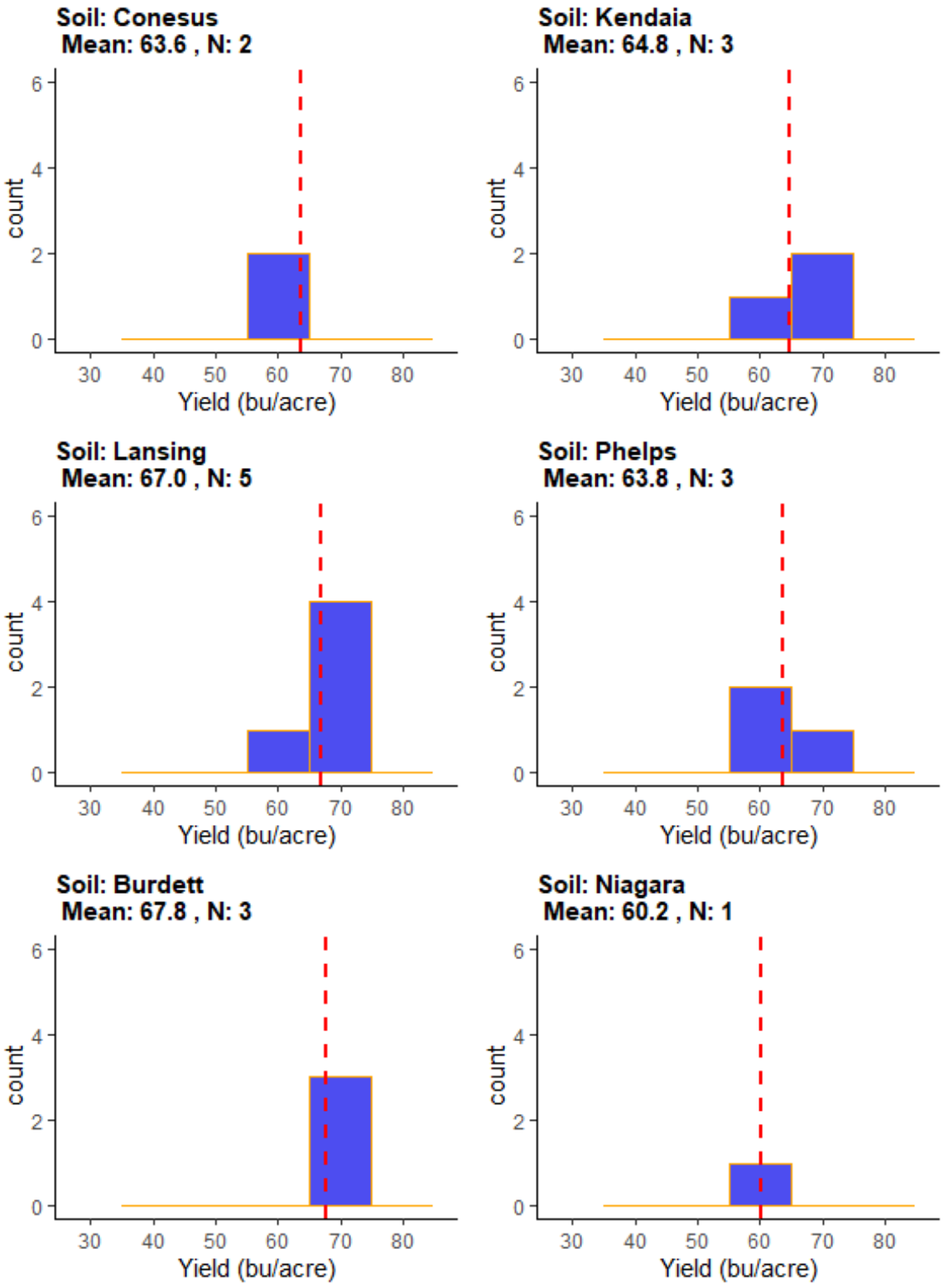

Soil: Cazenovia
Mean: 58.1 , N: 1
count
Yield (bu/acre)

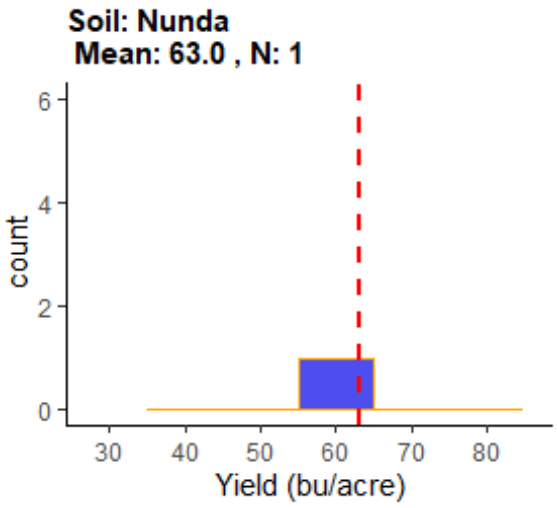

Soil: Ontario-Hilton
Mean: 60.2 , N: 1
count
Yield (bu/acre)

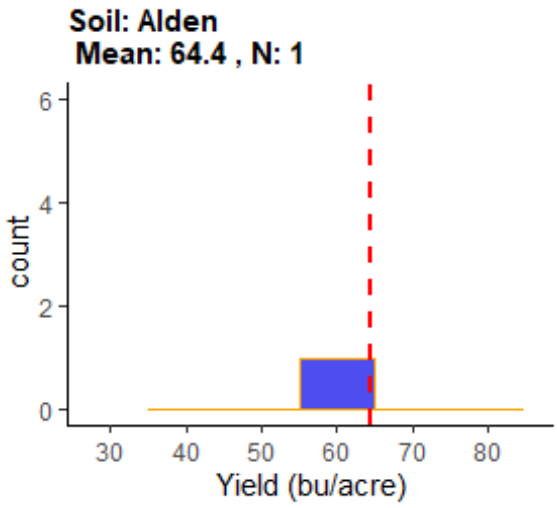

Soil: Honeoye
Mean: 59.4 , N: 1
count
Yield (bu/acre)

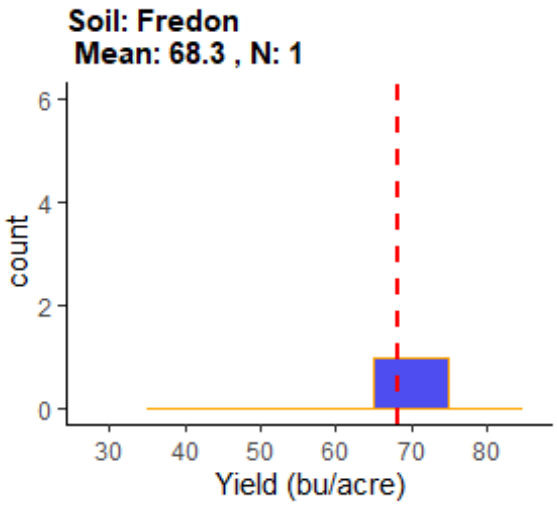

Soil: Palmyra
Mean: 64.7 , N: 4
count
Yield (bu/acre)


Soil: Appleton
Mean: 63.8 , N: 2
count
Yield (bu/acre)


Soil: Conesus
Mean: 63.6 , N: 2
Soil: Kendaia
Mean: 64.8 , N: 3
Soil: Lansing
Mean: 67.0 , N: 5
Soil: Phelps
Mean: 63.8 , N: 3
Soil: Burdett
Mean: 67.8 , N: 3
Soil: Niagara
Mean: 60.2 , N: 1
count
Yield (bu/acre)
0
2
4
6
30
40
50
60
70
80


Soil: Nunda
Mean: 63.0 , N: 1
count
0
2
4
6
30
40
50
60
70
80
Yield (bu/acre)


Soil: Alden
Mean: 64.4 , N: 1
count
0
2
4
6
30
40
50
60
70
80
Yield (bu/acre)


Soil: Fredon
Mean: 68.3 , N: 1
count
0
2
4
6
30
40
50
60
70
80
Yield (bu/acre)