County 83 HARDIN
Crop RP-SOYBEANS
Practice NON IRR
Type COMM
Legal Description
7 89N 22W

Unit Description [redacted] 6579 2025
Insured's Share 1.000 Other persons sharing in crop

Unit Number BU 2.0000 FSN 6999 Yield No. 12.0

☐ Added Land/Cropland Acres ___ ☐ New Prac/Type/TMA ☐ New Crop ☐ Meas. Serv.

Crop Year	Pre/Post-Quality Total Production		Acres	Pre/Post-Quality Actual Yield/Yield Descriptor	
05			155.2	52	TA
07			155.2	56	TA
09			155.2	52	TA
11		8549	155.2	55	TA
13		7847	155.2	51	TA
15		8338	155.2	54	TA
17		9158	155.2	59	TA
19	D	8986	155.2	58	TA
21	D	10091	155.2	65	TA
23	M	7766	155.2	50	TA L

Crop Year 2025 Production Reporting

Pre/Post-Quality Total Production	Acres/Insurability	Pre/Post-Quality Actual Yield	Production Record Type

Total Yield	552.0	Prior Yield	61
÷ Years	10	Ave Yield	55
= Prelim Yield	55	Adj Yield	55
		Rate Yield	55
T-Yield	58	Appr Yield	61

Planted Acres | Prevented Acres
Date Planting Completed | Uninsurable Acres
High Risk Acres Class | High Risk Acres

Remarks/Other: SC 03/17/25 PR 04/29/26 PL 06/15/25 AR 07/15/25
OPTIONS:TA
A. Actual
Non-Trend App Yld 55.0
Trend Ylds: 05=62, 07=65, 09=60, 11=62, 13=57, 15=59, 17=63
19=61, 21=67, 23=51

WEB COPY

County 83 HARDIN
Crop RP-CORN
Practice NON IRR
Type GSG
Legal Description
7 89N 22W

Unit Description [redacted] 5105 2024
Insured's Share 1.000 Other persons sharing in crop

Unit Number BU 2.0000 FSN 6999 Yield No. 11.0

☐ Added Land/Cropland Acres ___ ☐ New Prac/Type/TMA ☐ New Crop ☐ Meas. Serv.

Crop Year	Pre/Post-Quality Total Production		Acres	Pre/Post-Quality Actual Yield/Yield Descriptor	
04			155.2	201	TA
06			155.2	190	TA
08			155.2	157	TA
10		27346	155.2	176	TA
12		28903	155.2	186	TA
14		26777	155.2	173	TA
16		25311	155.2	163	TA
18	B	31971	155.2	206	TA
20	M	25589	155.2	165	TA L
22	B	35233	155.2	227	TA

Crop Year 2024 Production Reporting

Pre/Post-Quality Total Production	Acres/Insurability	Pre/Post-Quality Actual Yield	Production Record Type

Total Yield	1844.0	Prior Yield	205
÷ Years	10	Ave Yield	184
= Prelim Yield	184	Adj Yield	
		Rate Yield	184
T-Yield	191	Appr Yield	207

Planted Acres | Prevented Acres
Date Planting Completed | Uninsurable Acres
High Risk Acres Class | High Risk Acres

Remarks/Other: SC 03/15/24 PR 04/29/25 PL 05/31/24 AR 07/15/24
OPTIONS:TA
A. Actual
Non-Trend App Yld 184.0
Trend Ylds: 04=243, 06=228, 08=190, 10=205, 12=211, 14=194, 16=180, 18=219, 20=173, 22=231

MAPS Ratings

To maintain a given soil fertility level, one needs to apply the amount of nutrients used by the crop. A fertilizer application that is greater than what the crop removes will build soil fertility levels. Conversely, applying less than crop removal will deplete the soil fertility levels.

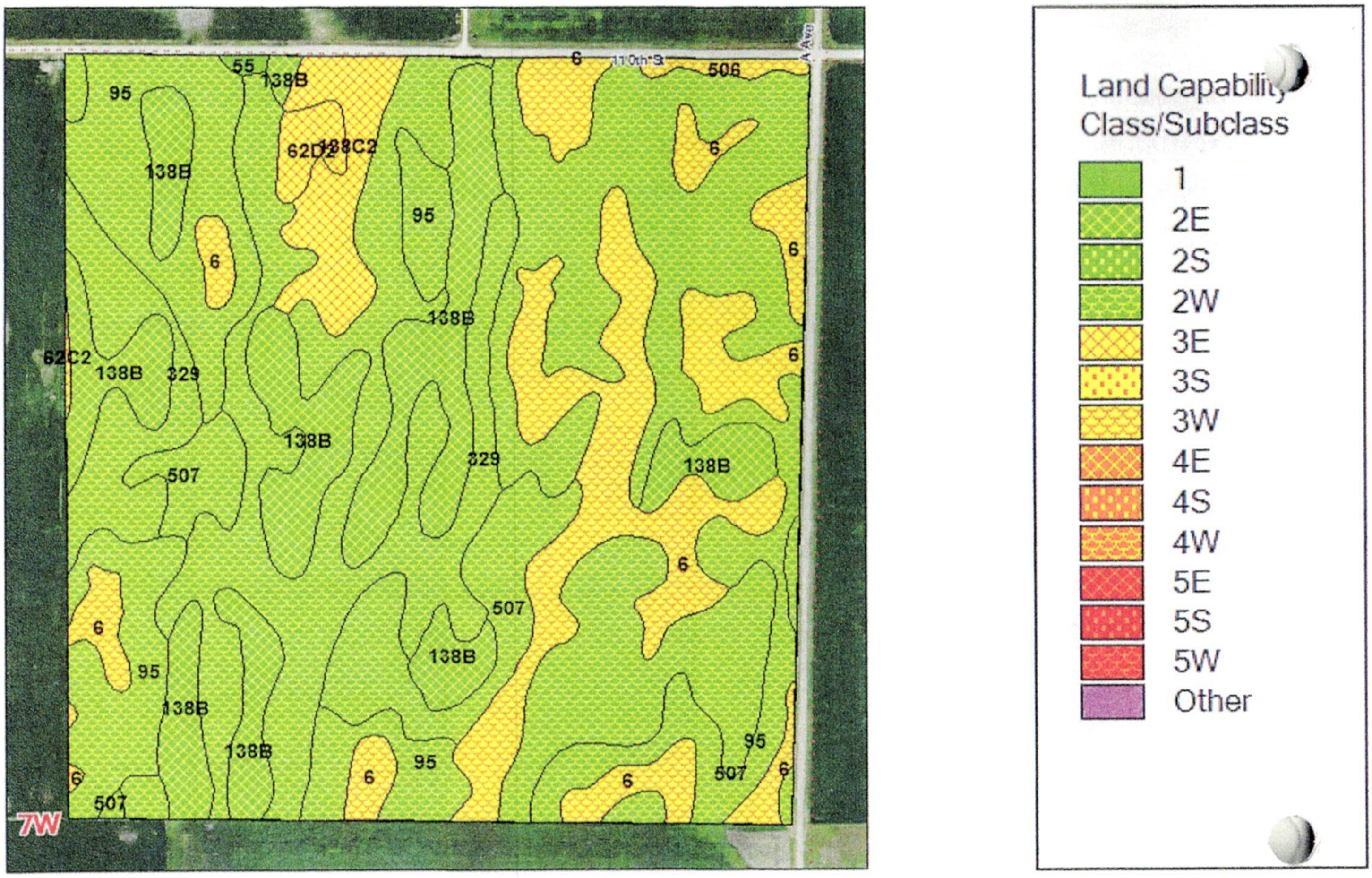
Throughout the MAPS fertility management book the following color scheme is used.

Very Low Red	Yields are usually restricted.
Low Orange	Yields are usually restricted unless conditions are ideal.
Optimum Yellow	Enough nutrients for most conditions for a typical year.
High Green	Enough nutrients for high yield goals under a wide range of conditions.
Very High Blue	It is unlikely to see any economic response to fertilizer applied to these areas.

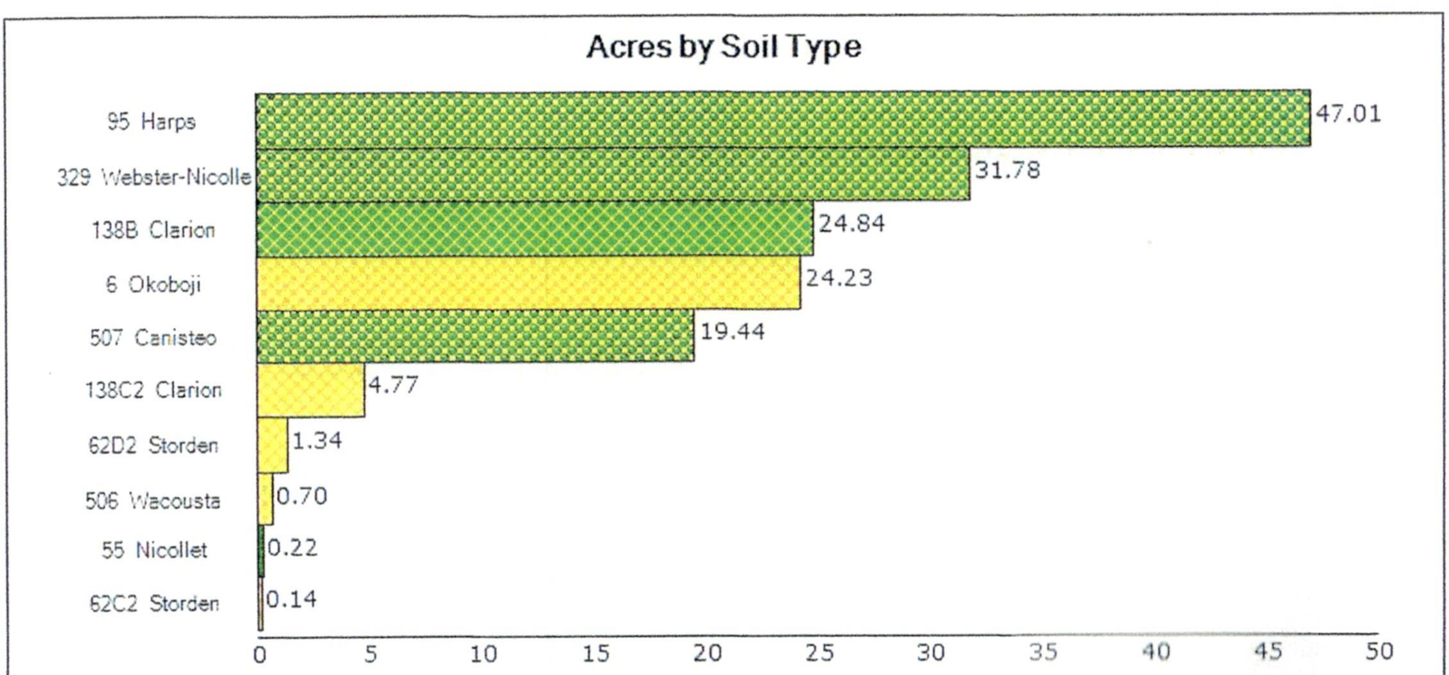
Disclaimer

The MAPS recommendations included in the book are based on the best information that we currently have available to us. The final decision as to the best methodology to be used rests with the individual producer who is aware of the variables involved in successful crop production. MAPS makes no expressed or implied warranties with the respect to crop yield or successful production with respect to the information contained herein.

Soil Types



ADH7WE



Soil Types

Soils in Iowa have different inherent capabilities as far as their ability to produce a given crop. The soil type map on the adjoining page was generated using the *Land Capability Classification* that shows, in a general way, the suitability of soils for most kinds of field crops. The soils are grouped according to their production capabilities for field crops and the way they respond to management. Criteria used in grouping the soils do not include major and generally expensive land forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects.

The class numbers, 1 through 7, in the legend right of the map indicate progressively greater limitations and narrower choices for practical use. They are defined as follows:

Class I (1) soils have slight limitations that restrict their use.

Class II (2) soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.

Class III (3) soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.

Class IV (4) soils have very severe limitations that restrict the choice of plants or require very careful management, or both.

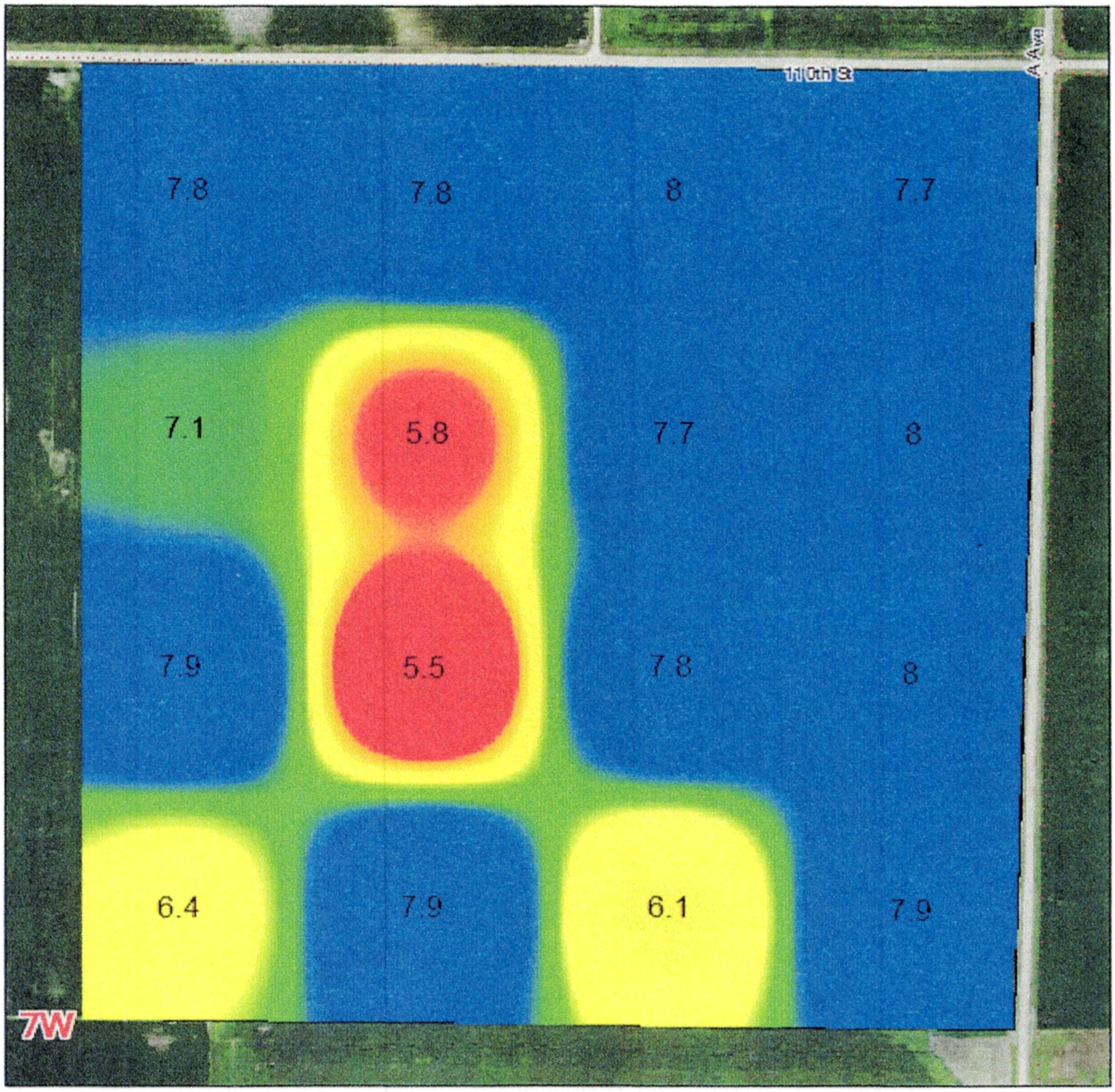
Class V (5) soils have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, range, forestland, or wildlife food and cover.

Class VI (6) soils have severe limitations that make them generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover.

Class VII (7) soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to grazing, forestland, or wildlife.

The histogram at the bottom of the soil types page further details the soils by symbol, soil name, slope, and the acres included by each type for the field.

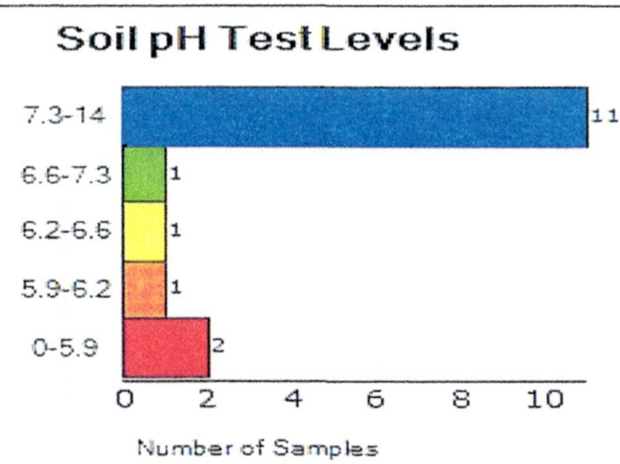
Soil pH Test Levels



ADH7WE **Sampled 2020**

RANGES

- Very High
- High
- Optimum
- Low
- Very Low
- All Others



Statistics

MIN.	5.5
AVG.	7.3
MAX.	8.0

Soil pH

Soil pH is a measure of the **degree** of soil acidity or of the **active hydrogen** in the soil solution. This hydrogen is present in the soil solution as positively charged particles or ions.

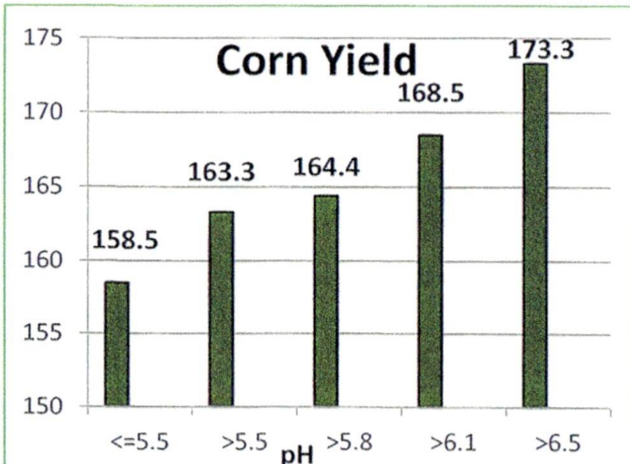
Soil pH can have a dramatic effect on the availability of nutrients as displayed by the chart to the right. Soil pH is the measure of how alkaline or acid a soil is. A pH of slightly below 7 is considered ideal for most crops. A pH <7 is considered acidic and a pH >7 is considered alkaline. Acid soils can be corrected by using aglime. Alkaline soils are very difficult to practically treat. Our soils in this area range anywhere from 5.5 to 8.0 with some exceptions on either side.

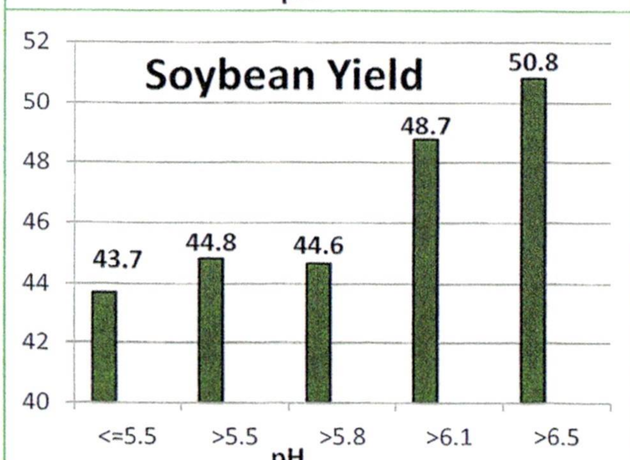
Uniform spreading on the land surface and mixing into the plow layer are assumed when making a limestone recommendation. Because lime moves very slowly in the soil and since uniform mixing is difficult to attain, it may be several years before the lime can be completely effective in neutralizing soil acidity in the plow layer. For any cropping system, apply lime before tilling the soil. Avoid spreading lime when the soil is wet, especially in the spring.

Farmers can do everything right, except one basic step... and lose profitable yields.

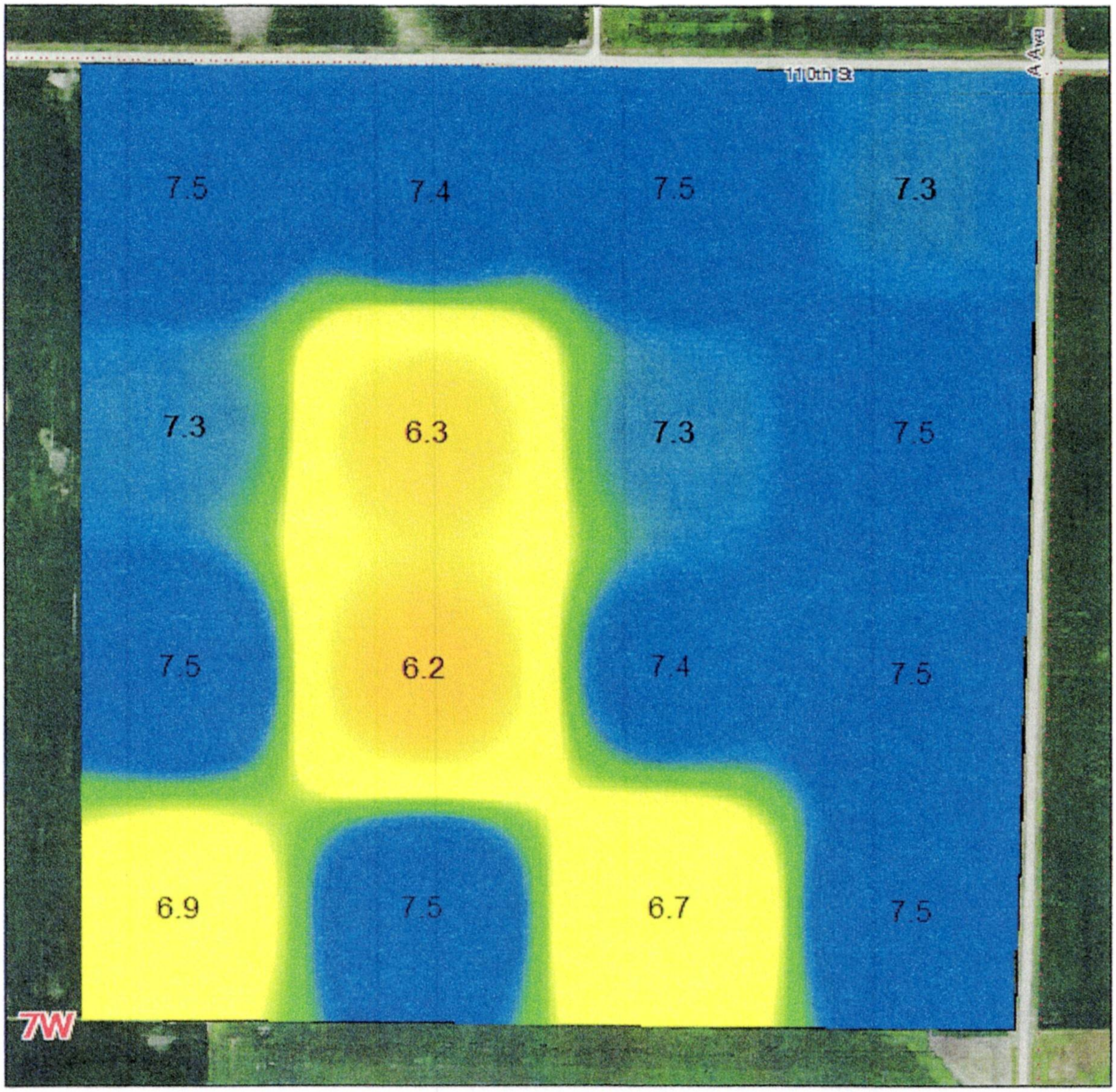
Long-term research has shown that failing to lime acid soils can cause yield losses even with high levels of soil fertility.

The charts to the right are results from research done at Christenson Research Farms near Humboldt, Ia. In these studies, N-P-K was kept at adequate levels so that the increase in yield was the effect of the pH correction.





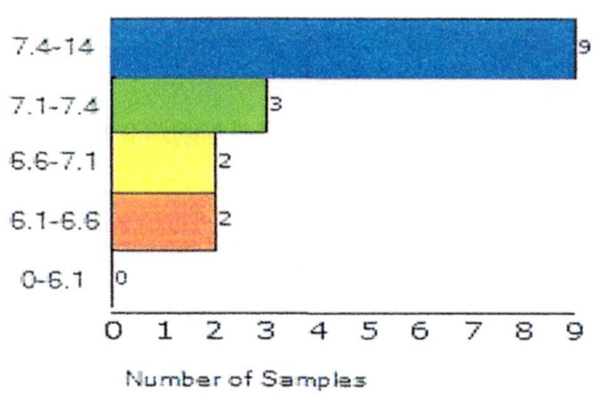
pH Buffer Test Levels



ADH7WE — Sampled 2020

RANGES

- Very High
- High
- Optimum
- Low
- Very Low
- All Others



Statistics

MIN.	6.2
AVG.	7.2
MAX.	7.5

pH Buffer

Buffer pH is a measure of the **amount** of soil acidity or of the **potential acidity.** The potential acidity is due to the hydrogen held by the negatively charged soil particles of clay and humus. Hydrogen ions on the surface of these particles are known as exchangeable ions because they can be replaced by other positively charged ions such as calcium, magnesium, or potassium.

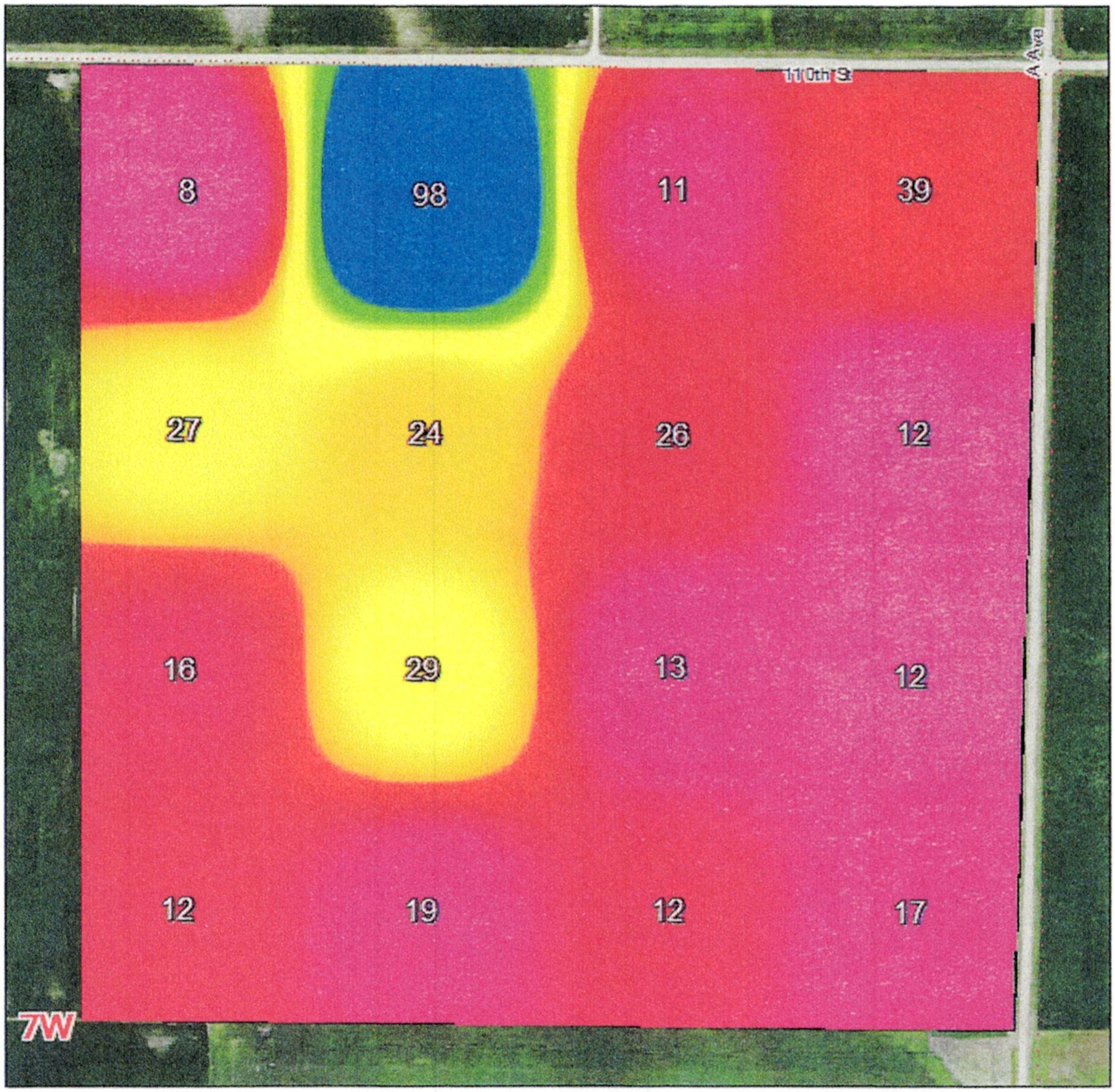
The buffer pH is a more useful measurement for determining lime needs. The buffering capacity is the soil's ability to resist change in pH when base-forming materials such as lime are added. The buffer solution added to the soil replaces some of the hydrogen held by the clay and humus. The pH of this soil-buffer solution mixture is the buffer pH. The buffer pH of many Iowa soils has been calibrated with the amount of limestone (pounds of ECCE) needed to change the soil pH to 6.5 and 6.9, and the limestone recommendations are based on this calibration.

A Comparison

The degree of soil acidity (measured by soil pH) compares with the temperature of water, whereas the amount of acidity (measured by buffer pH) compares with the amount of water at a particular temperature. As an example, you may have either a cupful or a pot full of boiling water. The temperature of the water is the same in both containers, but the water in the pail has more total heat and more ice would be required to cool it to the same temperature. Thus, two soils may have the same soil pH, but the soil with the higher amount of clay and organic matter will have the lower buffer pH and thus the higher lime requirement.

	Soil A	**Soil B**
Soil pH	6.0	6.0
Texture of soil	Sandy Loam	Clay Loam
Buffer pH	6.6	6.2
Lime requirement to raise soil pH to 6.5 (lb. ECCE per A)	**2100**	**5000**

Phosphorus Soil Test Levels



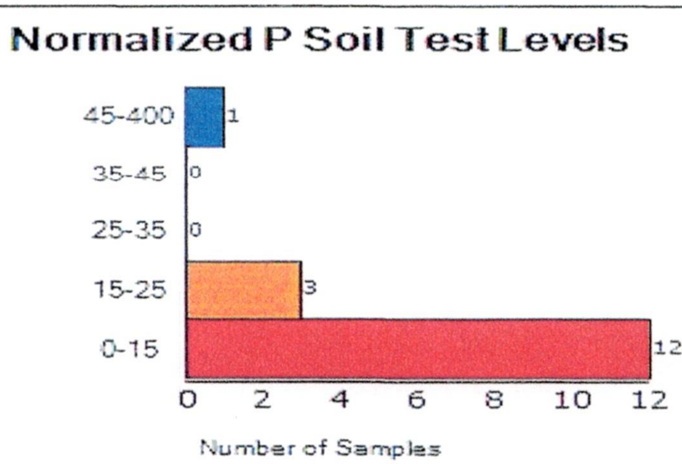
(Olsen, Mehlich, Mehlich Icp, or Bray Test)

ADH7WE

Sampled 2020

RANGES

- Very High
- High
- Optimum
- Low
- Very Low
- All Others



Statistics

MIN.	4.0
AVG.	13.9
MAX.	66.0

Phosphorus

Phosphorus (P) is essential for crop growth. No other nutrient can be substituted for it. The plant must have P to complete its normal production cycle. It is one of the three major nutrients. The other two are nitrogen (N) and potassium (K).

Phosphorus plays a role in photosynthesis, respiration, energy storage and transfer, cell division, cell enlargement, and several other processes in the living plant. It promotes early root formation and growth. Phosphorus improves the quality of fruit, vegetable, and grain crops and is vital to seed formation. It is involved in the transfer of heredity traits from one generation to the next.

Phosphorus helps roots and seedlings develop more rapidly. It increases water use efficiency, contributes to disease resistance in some plants and hastens maturity important to harvest and crop quality.

Phosphorus is very immobile in the soil. Due to this fact, it is important to maintain adequate levels of phosphorus to ensure maximum yields. It can also become less available to the plant under cold wet conditions and at abnormal pH levels.

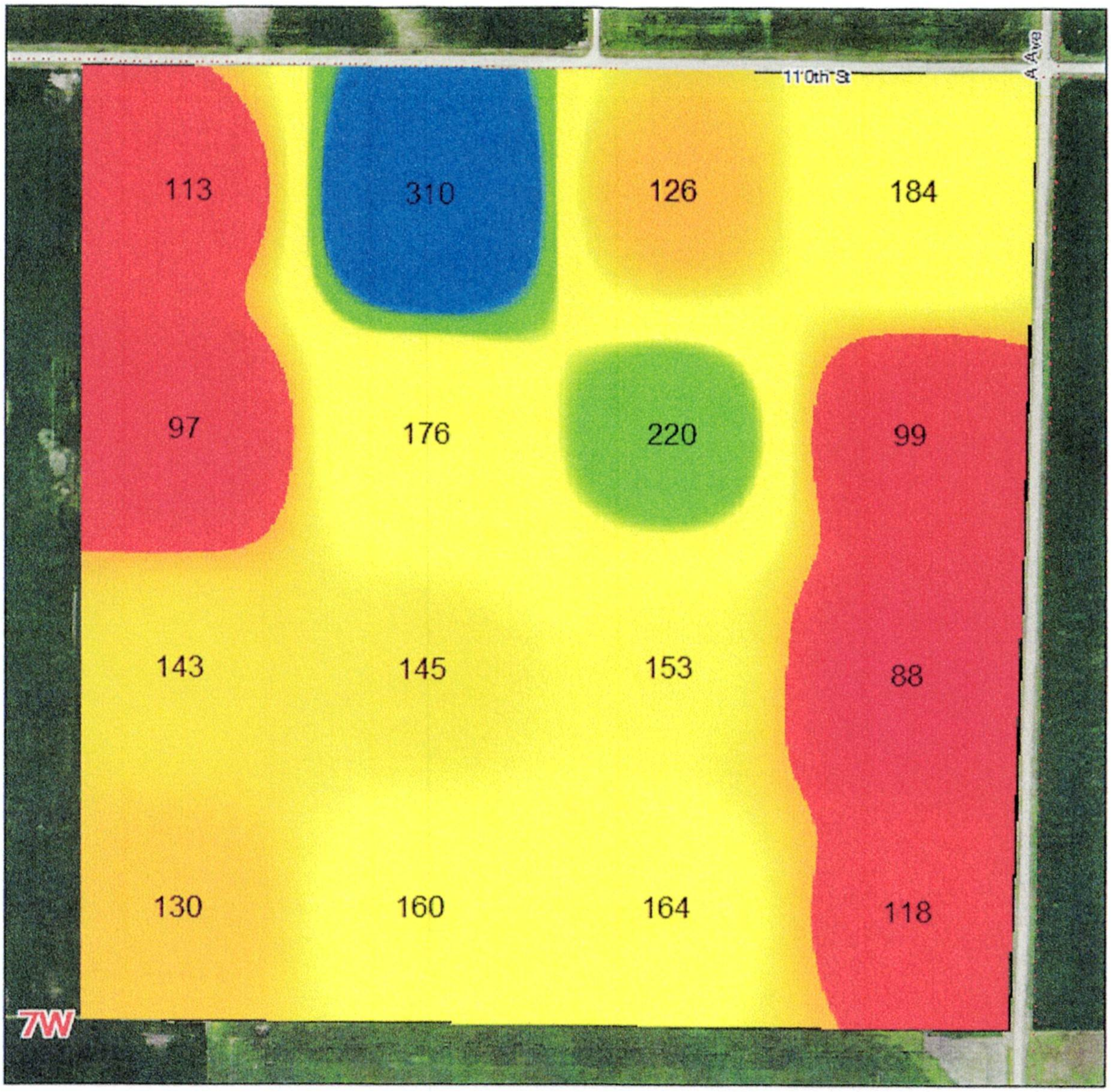
Pure phosphorus does not occur naturally. Commercial fertilizers consist of phosphate rock that has been strip mined at about 15 % P and upgraded for use as fertilizer. Upgrading removes clay and other impurities. The phosphate rock is then treated with ammoniating phosphoric acid to produce what we know as phosphate or MAP.

MAP (11-52-0) represents 11 lbs. nitrogen and 52 lbs. phosphorous for every 100 lbs. material. Corn grain removes .38 lbs. phosphorus per bushel and soybeans remove .8 lbs of phosphorus per bushel. For example, a crop rotation of 200 bushels corn and 60 bushels soybeans removes 124 lbs. of actual phosphorus or 238 lbs. of the product 11-52-0.

Phosphorus (P) Recommendations		
	Corn	
Soil Test Category	**Bray P1 or Mehlich-3 (ppm)**	**Olsen (ppm)**
Very Low	0-14	0-5
Low	15-24	6-10
Optimum	25-34	11-14
High	35-45	15-20
Very High	46+	21+
	Soybeans	
Very Low	0-14	0-5
Low	15-24	6-10
Optimum	25-34	11-14
High	35-45	15-20
Very High	46+	21+

Olsen or Mehlich 3 tests are run on all samples with a ph>7.3
These ranges were determined by averaging out 10 leading corn/bean state universities.

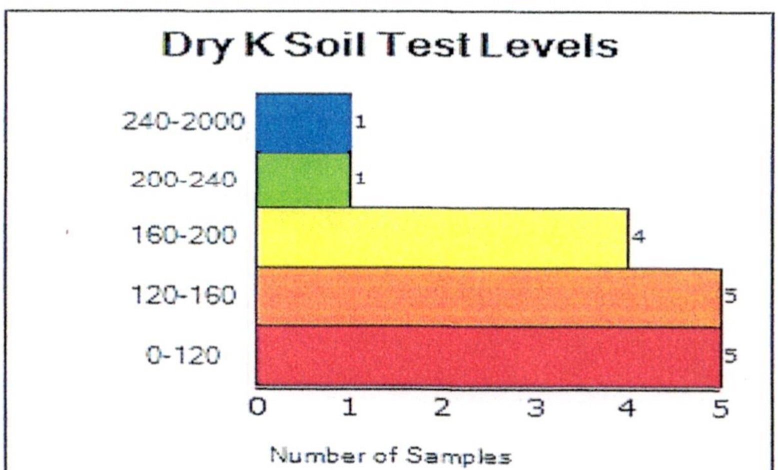
Potassium Soil Test Levels



(Wet or Dry Test) ADH7WE Sampled 2020

RANGES

- Very High
- High
- Optimum
- Low
- Very Low
- All Others



Statistics

MIN.	88.0
AVG.	151.6
MAX.	310.0

Potassium

The chemical symbol for potassium is K, which is derived from the German word, Kalium. Potassium is another one of the major plant nutrients including nitrogen and phosphorus. No other nutrient can replace it.

Potassium has a great impact on crop quality, including increased kernel weight and kernels per ear in corn and improved oil and protein content in soybeans.

Potassium is vital to photosynthesis. High K levels help increase crop tolerance to drought stress. When K is deficient, photosynthesis declines, and the plant's respiration increases. Potassium is critical to maintaining favorable plant water status. If K becomes deficient, stomates do not function properly, inhibiting photosynthesis and interfering with plant water relations. K in the cell water allows the cells to maintain high internal water pressure. More K permits the maintenance of this pressure as the plant's environment gets drier and drier. With sufficient K, plants can continue to photosynthesize and to grow through periods of dry conditions. Sufficient levels of potassium also **improve seedling vigor, plant health**, and **stalk strength**.

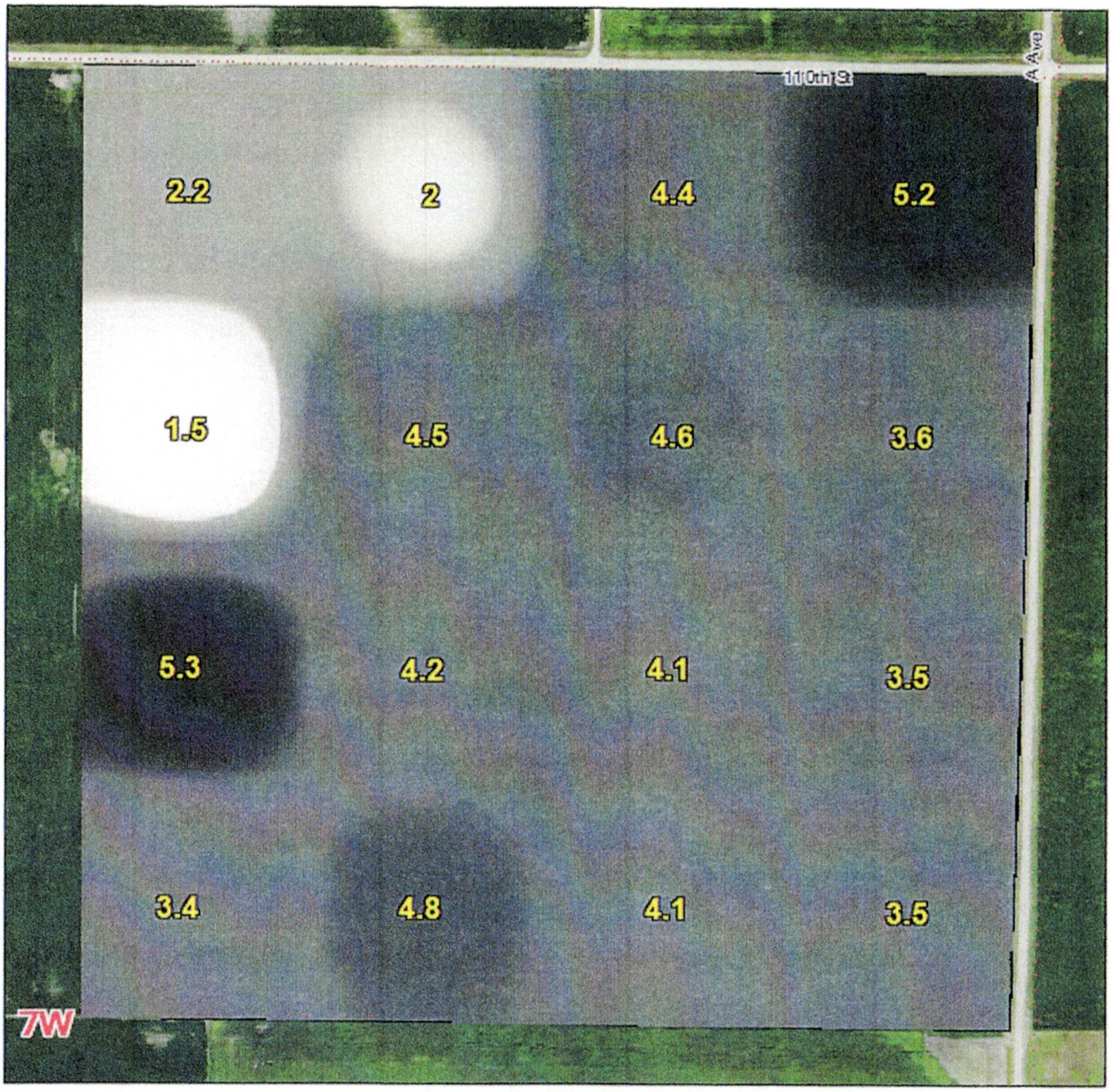
Potassium's importance in disease suppression cannot be overstated. Many trials have shown potash as a key element in reducing leaf blight and stalk rot in corn as well as mold and mildew in soybeans. When K helps a plant resist disease, it doesn't do it as a direct agent of control, but by strengthening the natural resistance mechanisms of the plant.

Potash (0-0-60) represents 60 lbs. K2O for every 100 lbs. material. Corn grain removes .3 lbs. K2O per bushel and soybeans remove 1.5 lbs. of K2O per bushel. For example, a crop rotation of 200 bushels corn and 60 bushels soybeans removes 150 lbs. of actual potassium or 250 lbs. of the product 0-0-60.

	Potassium (K) Recommendations
	Corn
Soil Test Category	**(ppm)**
	Dried/Ground
Very Low	0-120
Low	120-160
Optimum	160-200
High	200-240
Very High	240+
	Soybeans
Very Low	0-120
Low	120-160
Optimum	160-200
High	200-240
Very High	240+

These ranges were determined by averaging out 10 leading corn/bean state universities.

Organic Matter Levels

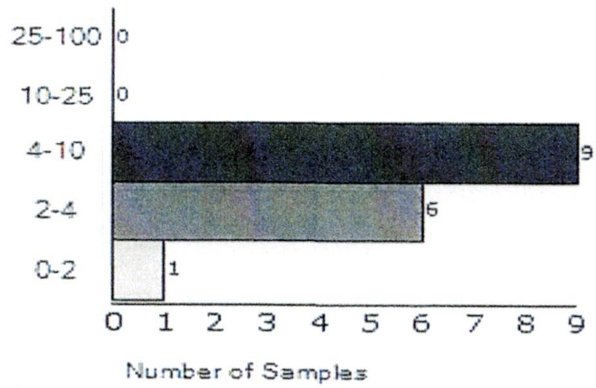


ADH7WE   Sampled 2020

RANGES

- Peat
- Muck
- Heavy
- Medium
- Light
- All Others

Organic Matter Levels



Statistics

MIN.	1.5
AVG.	3.8
MAX.	5.3

Organic Matter

Organic matter (OM) is the partially decomposed residue of plants, animals, and other organisms. Initially plant residue requires nitrogen to decompose. As OM decays, it will release nitrogen for future crops. Under favorable conditions, one to three percent of the soils' OM can decompose annually.

Organic matter acts as a sponge. High organic matter soils have the capacity to hold more nutrients, chemicals and water. Conversely, sandy soils, low in organic matter, cannot hold a lot of nutrients. Sandy soils must be fertilized more frequently with lower amounts.

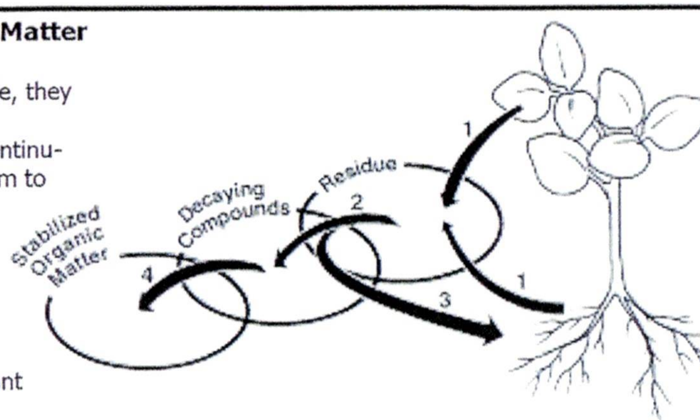
Organic matter benefits include:

- ✓ Reduces compaction
- ✓ Promotes water movement
- ✓ Promotes healthy roots
- ✓ Prevents soil erosion
- ✓ Holds fertilizer and chemicals

Organic matter results are used in recommendations for nitrogen rates on corn and also many times are the determining factor on the correct rate of pre-plant incorporated herbicides.

The Changing Forms of Soil Organic Matter

1. **Additions.** When roots and leaves die, they become part of the soil organic matter.
2. **Transformations.** Soil organisms continually change organic compounds from one form to another. They consume plant residue and other organic matter, and then create by-products, wastes, and cell tissue.
3. **Microbes feed plants.** Some of the wastes released by soil organisms are nutrients that can be used by plants. Organisms release other compounds that affect plant growth.
4. **Stabilization of organic matter.** Eventually, soil organic compounds become stabilized and resistant to further changes.



SOIL ANALYSIS

AgSource LABORATORIES

Submitted by
NEW COOPERATIVE INC- Grid
PO Box 818
FORT DODGE, IA 50501

Submitted For
[redacted]

Date Sampled
10/1/2020

Date Received
12-Oct-2020

Laboratory Sample #
BX23601 - BX23617

Account Number
EW50501201

Field
ADH7WE

Date Reported
16-Oct-2020

Information Sheet #
S1012-664

Signup Id: 62497 Field Id: ADH7WE

Sample Id	Soil pH	Buffer pH	Sol. Salt	OM	Phosphorus				Wet K	K	Mg	Ca	S	Zn	Mn	Cu	Fe	B	CEC	% Base Saturation				
					Bray 1	Bray 2	Olsen	M3												H	K	Mg	Ca	Na
				%	ppm															%	%	%	%	%
1	7.7	7.4		5.2			10	39		184	400	5912	4	0.7					33.3	0.0	1.4	9.9	88.5	0.2
2	8.0	7.5		3.6			3	12		99	300	6908	4	0.4					37.3	0.0	0.7	6.6	92.5	0.2
3	8.0	7.5		3.5			3	12		88	327	7209	5	0.8					39.0	0.0	0.6	6.9	92.3	0.2
4	7.9	7.5		3.5			4	17		118	233	5660	5	0.4					30.5	0.0	1.0	6.3	92.5	0.2
5	6.1	6.7		4.1				12		164	473	3846	4	0.4					30.6	23.0	1.4	12.7	62.7	0.2
6	7.8	7.4		4.1			4	13		153	302	6447	4	0.4					35.1	0.0	1.1	7.1	91.6	0.2
7	7.7	7.4		4.6			8	26		220	378	6034	6	0.8					33.8	0.0	1.7	9.2	89.0	0.2
8	8.0	7.5		4.4			5	11		126	287	8306	4	0.7					44.2	0.0	0.7	5.3	93.8	0.1
9	7.8	7.4		2.0			46	98		310	352	3523	3	3.2					21.3	0.0	3.7	13.6	82.4	0.2
10	5.8	6.3		4.5				24		176	472	3657	5	0.6					32.9	31.1	1.4	11.8	55.5	0.2
11	5.5	6.2		4.2				29		145	264	2555	5	0.4					26.1	41.3	1.4	8.3	48.8	0.2
12	7.9	7.5		4.8			5	19		160	287	7350	4	0.9					39.5	0.0	1.0	6.0	92.8	0.1
13	6.4	6.9		3.4				12		130	466	4167	5	0.4					30.3	17.5	1.1	12.6	68.6	0.2
14	7.9	7.5		5.3			6	16		143	323	8268	5	0.6					44.4	0.0	0.8	6.0	93.0	0.1
15	7.1	7.3		1.5				27		97	282	2084	4	0.4					13.0	0.1	1.9	17.8	79.8	0.4
16	7.8	7.5		2.2			3	8		113	229	4641	4	0.2					25.4	0.0	1.1	7.4	91.2	0.2
Average	7.3	7.2	----	3.8	----	----	9	23	----	152	391	5410	4	0.7	----	----	----	----	32.3	7.1	1.4	9.2	82.2	0.2

1701 Detroit Street, PO Box 247 • Ellsworth, IA 50075 • P: 515.836.4444 • ellsworth@agsource.com