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Extension FactSheet

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Useful Tables: Adjustments and Conversions on Corn and Soybean Parameters

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Expected Corn Yield Due to Various Planting Dates and Population Rates.*

Planting	Plants per acre at Harvest						
Date	12,000	14,000	16,000	18,000	20,000	22,500	25,000
	% of optimum yield						
Apr 20	72	78	83	87	90	93	95
Apr 25	75	81	86	90	93	96	98
May 1	77	83	88	92	95	98	100
May 6	78	83	88	92	95	98	100
May 11	77	83	88	92	95	98	99
May 16	75	81	86	90	93	96	98
May 21	73	78	83	87	91	94	95
May 26	69	75	80	84	87	90	92
May 31	64	70	75	79	82	85	87
June 5	59	64	69	73	77	80	81
June 10	52	58	63	67	70	73	75

* Yields are expressed as a % of optimum planting date and population yield.

Seed Spacings to Achieve Various Corn Plant Populations.

	Inches Between Kernels				Final*
Seeds/ac	15"row	20"row	30"row	40"row	Pop.
15,000	27.9	20.9	13.9	10.5	13,500
16,000	26.1	19.6	13.1	9.8	14,400
17,000	24.6	18.4	12.3	9.2	15,300
18,000	23.2	17.4	11.6	8.7	16,200
19,000	22.0	16.5	11.0	8.3	17,100
20,000	20.9	15.7	10.5	7.8	18,000
22,000	19.0	14.3	9.5	7.1	19,800
24,000	17.4	13.1	8.7	6.5	21,600
26,000	16.1	12.1	8.0	6.0	23,400
28,000	14.9	11.2	7.5	5.6	25,200
30,000	13.9	10.5	7.0	5.2	27,000
32,000	13.1	9.8	6.5	4.9	28,800

*Assuming 10% stand loss.

Corn Moisture Corrections.

Pounds Needed to Equal One Bushel of No. 2 Corn

Percent Moisture	Shell Corn	Ear Corn	Percent Moisture	Shell Corn	Ear Corn
10.0	52.58	63.49	23.5	61.86	79.01
11.0	53.17	64.25	24.0	62.26	79.76
12.0	53.77	65.06	24.5	62.68	80.50
12.5	54.08	65.50	25.0	63.09	81.25
13.0	54.39	65.95	25.5	63.52	82.03
13.5	54.71	66.42	26.0	63.95	82.82
14.0	55.02	66.89	26.5	64.38	83.50
14.5	55.35	67.39	27.0	64.82	84.19
15.0	55.67	67.89	27.5	65.27	84.90
15.5	56.00	68.40	28.0	65.72	85.62
16.0	56.33	68.94	28.5	66.18	86.32
16.5	56.67	69.51	29.0	66.65	87.04
17.0	57.01	70.09	29.5	67.12	87.76
17.5	57.36	70.69	30.0	67.60	88.50
18.0	57.71	71.31	31.0	68.58	89.94
18.5	58.06	71.95	32.0	69.59	91.43
19.0	58.42	72.60	33.0	70.63	92.85
19.5	58.78	73.27	34.0	71.70	94.28
20.0	59.15	73.96	35.0	72.80	95.71
20.5	59.52	74.60	36.0	73.94	97.17
21.0	59.90	75.36	37.0	75.11	98.64
21.5	60.28	76.07	38.0	76.32	100.13
22.0	60.67	76.79	39.0	77.57	101.63
22.5	61.06	77.53	40.0	78.87	103.16
23.0	61.45	78.25			

lbs dry corn = [(100% - wet%) / (100% - Dry %)] x lbs. of wet grain.

EXAMPLE: Convert 10,000 lbs. of 25% moisture corn to 15.5% moisture:

[(100%-25%) / (100%-15.5%) x 10,000 lbs.] = (25% / 84.5% x 10,000)= 0.888 x 10,000 = 8,880 lbs. @ 15.5%

Suggested Soybean Plant Populations and Seeding Rates at Various Row Widths

Row Width Inches	Suggested No. of Plants /Feet of Row Plants/Ft.	Recommended Total Plant Population Plants/Acre	Required Seeding Rate at 90% Germination@ & 90% Emergence Seeds/Ft.	Required #/Acre 2,500 Seeds/# lbs/Acre
30	6.5	112,907	8.0	56
20	4.9	127,020	6.0	63
15	4.1	141,134	5.0	70
10	2.8	169,361	4.0	84
7.5	2.4	169,361	3.0	84

USDA Grade Requirements for Shelled Corn.

Grade	Min. Test Weight/ Bushel	Cracked Foreign Material*	Maximum Limits of Damaged Kernels	
			Total	Heat
	(lb)	(%)	(%)	
1	56	2	3	.1
2	54	3	5	.2
3	52	4	7	.5
4	49	5	10	1.0
5	46	7	15	3.0

Sample grade shall include corn of the class Yellow Corn, White Corn, or Mixed Corn, which does not come within the requirements of any of the grades from No. 1 to No. 5, inclusive; or which contains stones and/or cinders; or which is musty, sour, or heating; or which has a commercially objectionable foreign odor; or which is otherwise of distinctly low quality.

*Broken corn, foreign material, and other grains.

Soybean Moisture Conversions.

% Moisture	Pounds per Bu.	% Moisture	Pounds per Bu.
7.0	56.13	14.0	60.70
7.5	56.43	14.5	61.05
8.0	56.74	15.0	61.41
8.5	57.05	15.5	61.77
9.0	57.36	16.0	62.14
9.5	57.68	16.5	62.51
10.0	58.00	17.0	62.89
10.5	58.32	17.5	63.27
11.0	58.65	18.0	63.66
11.5	58.98	18.5	64.05
12.0	59.32	19.0	64.44
12.5	59.66	19.5	64.84
13.0	60.00	20.0	65.25
13.5	60.35		

lbs dry = [(100% - wet%) / (100% - dry%)] x lbs of wet grain

EXAMPLE: Convert 3,000 lbs of 18% moisture beans to 13.0%moisture:

[(100%-18%) / (100%-13%)] x 3,000 lbs = 82/87 x 3,000 lbs = 0.942 x 3,000 lbs = 2827.5 lbs @ 13%.

Length of Row Equal to 1/1,000th Acre

Row Width	Length of Single Row to Equal 1/1,000th of an Acre	
Inches	Feet	Inches
6	87	1
7	74	8
8	65	4
10	52	3
15	34	10
20	26	2
28	18	8
30	17	5

Atomic Weights of Nutrients

Element		Atomic Weight
N	Nitrogen	14.01
P	Phosphorus	30.98
K	Potassium	39.10
Ca	Calcium	40.08
Mg	Magnesium	24.31
S	Sulfur	32.06
Cu	Copper	63.54
Fe	Iron	55.85
Mn	Manganese	54.94
Zn	Zinc	65.37
B	Boron	10.82
Cl	Chlorine	35.46
Mo	Molybdenum	95.94
O	Oxygen	16.00
C	Carbon	12.01
H	Hydrogen	1.01

Water = H2O = 2*1.01 + 16.0 = 18.1

Micronutrient Sources

BORON MATERIALS	PERCENTAGE:
Borax	11
Boron Frits	2–6
Boric Acid	17
Fertilizer Borate-46	14
Fertilizer Borate-65	21
Solubor	20

ZINC MATERIALS	
Zinc Sulfate	35
Zinc Oxide	78–80
Organic Zinc Complexes	5–12
Zinc Chelates	9–14
Zinc Frits	Varies

MANGANESE MATERIALS	
Manganese Sulfate	25–28
Organic Manganese Complexes	5–12
Manganese Chelate	5–12
Manganese Frits	10–25

IRON MATERIALS	
Ferrous Sulfate	19–21
Ferric Sulfate	23–27
Iron Chelates	5–15
Organic Iron Complexes	5–12
Iron Frits	30–40

COPPER MATERIALS	
Copper Sulfate	13–53
Cupric Oxide	75
Cuprous Oxide	89
Copper Chelate	9–13
Copper Frits	40–50
Organic Copper Complexes	5–7

MOLYBDENUM MATERIALS	
Ammonium Molybdate	54
Sodium Molybdate	39
Molybdenum Frits	2–3

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