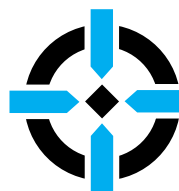


AGRONOMY HANDBOOK



Midwest

LaboratoriesSM

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SOIL AND PLANT ANALYSIS RESOURCE HANDBOOK

FOREWORD

Agriculture related analyses are indispensable in supplying accurate, current information for making management decisions regarding soil fertility and plant nutrition.

Maximum benefit can be gained if the samples are taken properly, analyzed reliably, and interpreted correctly.

Increasing world demand for food, feed, and fiber is challenging our present agricultural production systems to satisfy an expanding world population. More food production requires increased acreage devoted to agricultural crops and increased yields.

Loss of agricultural land, high costs of energy and other production inputs, decreasing supply of irrigation water, and increasing governmental regulations have all had a negative impact on the food production capacity of this country.

To meet this challenge, our efforts in agriculture must be focused on greater efficiency of production.

This publication is written to give guidelines for the taking of agriculture related samples and the interpretation of the analytical data. It also presents information for diagnosing specific physical and chemical soil problems and determining corrective treatments.

Included are various tables and illustrations which are of interest to agriculturists.

ACKNOWLEDGEMENTS:

Although most of the information contained in the previous editions of "Soil and Plant Analysis" is still current, much new and updated information is now available.

We have tried to include this in the new updated Agronomy Resource Handbook.

The writing and revisions have been a team effort by the agronomy staff.

Appreciation is expressed to each of the agronomists who has contributed to this publication.

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DISCLAIMER

The statements and recommendations made within the Agronomy Handbook are based on published research data and experience.

No guarantee or warranty is made, expressed or implied, concerning crop performance as a result of using the contents of this handbook.

table 29.

NUTRIENT REMOVALCORN - 180 BU./ACRE

Nutrient	Time Period				
	25 days	50 days	75 days	100 days	125 days
Nitrogen (N)	19 lbs.	103 lbs.	175 lbs.	226 lbs.	240 lbs.
Phosphate (P ₂ O ₅)	4 lbs.	31 lbs.	67 lbs.	92 lbs.	100 lbs.
Potash (K ₂ O)	22 lbs.	126 lbs.	198 lbs.	234 lbs.	240 lbs.

SORGHUM - 135 BU./ACRE

	20 days	40 days	60 days	85 days	95 days
Nitrogen (N)	9 lbs.	70 lbs.	130 lbs.	175 lbs.	185 lbs.
Phosphate (P ₂ O ₅)	2 lbs.	20 lbs.	48 lbs.	69 lbs.	80 lbs.
Potash (K ₂ O)	18 lbs.	121 lbs.	206 lbs.	245 lbs.	258 lbs.

SOYBEANS - 50 BU./ACRE

	40 days	80 days	100 days	120 days	140 days
Nitrogen (N)	7.6 lbs.	125 lbs.	134 lbs.	196 lbs.	257 lbs.
Phosphate (P ₂ O ₅)	1.1 lb.	21 lbs.	24 lbs.	36 lbs.	48 lbs.
Potash (K ₂ O)	6.1 lbs.	105 lbs.	112 lbs.	150 lbs.	187 lbs.
Calcium (Ca)	2.4 lbs.	31 lbs.	38 lbs.	49 lbs.	49 lbs.
Magnesium (Mg)	0.6 lb.	10 lbs.	11 lbs.	16 lbs.	19 lbs.

ALFALFA - 8 TONS/ACRE

	1st cut 2.35 T	2nd cut 2.10 T	3rd cut 2.03 T	4th cut 1.52 T	TOTAL 8 Tons
Nitrogen (N)	136 lbs.	111 lbs.	93 lbs.	75 lbs.	415 lbs.
Phosphate (P ₂ O ₅)	31 lbs.	24 lbs.	22 lbs.	17 lbs.	94 lbs.
Potash (K ₂ O)	124 lbs.	107 lbs.	98 lbs.	72 lbs.	401 lbs.
Calcium (Ca)	50 lbs.	41 lbs.	36 lbs.	24 lbs.	151 lbs.
Magnesium (Mg)	13 lbs.	9 lbs.	7 lbs.	7 lbs.	36 lbs.
Sulfur (S)	6 lbs.	8 lbs.	7 lbs.	5 lbs.	26 lbs.

table 28.

APPROXIMATE POUNDS OF PLANT FOOD NUTRIENT REMOVAL

CROP	UNIT	N	P₂O₅	K₂O	Mg	Ca	S
GRAINS							
Barley	Bu.	1.10	0.40	0.35	0.07	0.04	0.08
Canola	Bu.	3.00	1.31	2.37	0.25	0.25	0.20
Corn	Bu.	0.80	0.40	0.29	0.06	0.03	0.07
Flax	Bu.	2.70	1.10	0.30	0.18	0.25	0.20
Oats	Bu.	0.75	0.25	0.20	0.04	0.03	0.07
Rice	Bu.	0.65	0.28	0.17	0.05	0.04	0.04
Rye	Bu.	1.20	0.35	0.35	0.08	0.07	0.21
Sorghum (Milo)	Bu.	0.85	0.40	0.25	0.08	0.07	0.09
Soybeans	Bu.	4.10	0.85	1.45	0.23	0.22	0.20
Sunflowers	Cwt.	3.60	1.70	1.10	0.28	0.30	0.33
Wheat	Bu.	1.20	0.55	0.35	0.14	0.06	0.10
FORAGES (DRY BASIS)							
Alfalfa	Ton	56.0	15.0	60.0	5.0	28.0	5.0
Bluegrass	Ton	35.0	12.0	35.0	4.0	8.0	4.0
Brome Grass	Ton	40.0	12.0	44.0	4.0	8.5	3.4
Coastal Bermuda	Ton	50.0	12.0	40.0	4.5	7.5	6.0
Corn Silage (wet)	Ton	8.3	3.5	8.0	1.0	1.2	0.9
Cowpeas	Ton	62.0	12.0	42.0	7.5	27.0	6.5
Fescue	Ton	40.0	16.0	48.0	4.8	9.0	4.4
Lespedeza	Ton	48.0	15.0	45.0	7.0	20.0	6.0
Orchard Grass	Ton	45.0	14.0	55.0	4.4	8.0	5.5
Red Clover	Ton	56.0	12.5	45.0	6.0	24.0	5.0
Sorghum/Sudan	Ton	40.0	15.0	55.0	6.0	9.0	4.5
Sweet Clover	Ton	44.0	11.0	44.0	4.8	29.0	8.2
Timothy	Ton	36.0	13.5	54.0	3.5	8.0	3.5
Vetch	Ton	55.0	15.0	45.0	5.0	24.0	5.0
FRUITS & VEGETABLES							
Apples	100 Bu.	17.5	7.5	32.0	4.0	10.0	4.0
Beans, Dry	Bu.	2.5	0.8	0.9	0.1	0.08	0.17
Cabbages	Ton	6.5	2.4	8.0	1.0	2.4	2.2
Cantaloupes	Ton	6.8	2.3	11.5	1.2	3.5	1.1
Celery	Ton	5.2	2.2	10.0	0.8	2.6	1.4
Cucumbers	Ton	9.0	3.0	15.0	2.0	8.0	1.6
Grapes	Ton	5.5	2.0	10.0	0.4	1.0	1.1
Lettuce	Ton	7.0	2.3	10.0	0.7	2.8	0.8
Onions	Ton	6.0	2.7	5.3	0.6	1.6	2.4
Oranges	Ton	9.0	2.0	9.0	1.4	7.0	1.0
Peaches	100 Bu.	16.0	6.4	20.0	4.0	15.0	3.5
Pears	100 Bu.	15.0	6.0	24.0	3.5	12.0	3.0
Potatoes	Cwt.	0.33	0.15	0.53	0.025	0.025	0.016
Spinach	Ton	10.0	3.0	6.0	1.0	2.4	0.8
Sweet Potatoes	100 Bu.	25.0	10.0	50.0	5.0	3.0	4.0
Tomatoes	Ton	3.8	1.45	7.0	0.5	0.6	0.7
Turnips (roots)	Ton	4.5	2.0	8.0	0.6	1.2	0.85
Turnips (tops)	Ton	8.3	0.8	6.0	0.4	4.2	1.0
OTHER CROPS							
Cotton (S&L)	Bales	40.0	20.0	16.0	4.0	3.0	4.5
Peanuts	1000 lbs.	35.0	6.0	8.0	1.2	2.5	2.5
Sugar Beets	Ton	4.10	0.6	7.0	0.4	1.2	0.4
Sugarcane	Ton	1.6	0.9	3.5	0.3	0.5	0.45
Tobacco (flue)	Cwt.	2.80	0.50	5.2	0.9	2.9	0.7
Tobacco (burley)	Cwt.	4.30	0.44	4.7	1.0	2.6	0.9