

# Plant Tissue Sufficiency Ranges

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Various crops and growth stages

			Corn				
			< 12"	12" - tassel	Tasseling	Brown Silk	Mature
<b>N</b>	nitrogen	%	3.5 - 5	3 - 4	2.9 - 4	2.5 - 3.5	2.5 - 3.5
<b>P</b>	phosphorus	%	.35 - .8	.3 - .5	.25 - .5	.25 - .4	.25 - .4
<b>K</b>	potassium	%	3 - 5	2 - 3	1.8 - 2.8	1.6 - 2.5	1.6 - 2.5
<b>S</b>	sulfur	%	.25 - .5	.16 - .5	.16 - .5	.16 - .5	.12 - .4
<b>Ca</b>	calcium	%	.3 - 1.6	.25 - .8	.25 - .6	.2 - 1.2	.2 - .8
<b>Mg</b>	magnesium	%	.21 - .8	.15 - .6	.16 - .4	.12 - .5	.12 - .5
<b>Na</b>	sodium	%	0 - .1	0 - .1	0 - .1	0 - .1	0 - .1
<b>Zn</b>	zinc	ppm	20 - 75	20 - 75	20 - 75	16 - 50	16 - 50
<b>Fe</b>	iron	ppm	50 - 300	50 - 250	50 - 250	30 - 250	30 - 250
<b>Mn</b>	manganese	ppm	50 - 160	20 - 150	18 - 300	1 - 150	15 - 150
<b>Cu</b>	copper	ppm	6 - 20	5 - 15	5 - 15	4 - 20	4 - 20
<b>B</b>	boron	ppm	6 - 25	5 - 25	5 - 25	4 - 20	3 - 20

			Small Grains				Soybean
			Tillering	Boot	Heading(Flag)	Heading(Whole)	All stages
<b>N</b>	nitrogen	%	3.8 - 5.5	3.8 - 5	3.6 - 4.5	2.5 - 3.5	4 - 5.5
<b>P</b>	phosphorus	%	.3 - .5	.3 - .5	.3 - .5	.2 - .4	.26 - .5
<b>K</b>	potassium	%	2.5 - 3.5	2 - 3.5	2 - 3	1.8 -	1.7 - 2.5
<b>S</b>	sulfur	%	.2 - .5	.2 - .5	.2 - .5	.15 - .4	.2 - .6
<b>Ca</b>	calcium	%	.2 - .5	.2 - .5	.3 - .5	.2 - .5	.36 - 2
<b>Mg</b>	magnesium	%	.13 - .4	.15 - .4	.15 - .4	.15 - .5	.26 - 1
<b>Na</b>	sodium	%	0 - .1	0 - .1	0 - .1	0 - .1	0 - .1
<b>Zn</b>	zinc	ppm	20 - 70	20 - 70	20 - 70	15 - 70	20 - 50
<b>Fe</b>	iron	ppm	50 - 250	50 - 250	50 - 250	25 - 100	50 - 350
<b>Mn</b>	manganese	ppm	25 - 100	25 - 100	25 - 100	35 - 100	20 - 100
<b>Cu</b>	copper	ppm	5 - 25	5 - 25	5 - 24	5 - 25	7 - 29
<b>B</b>	boron	ppm	3 - 40	3 - 40	3 - 24	3 - 20	20 - 55
<b>Cl</b>	chloride	%	.3 - .6	.21 - .5	.21 - .5	.21 - .5	

			Beets	Canola		Drybean	Alfalfa
			All stages	Whole	Leaves	All stages	All stages
<b>N</b>	nitrogen	%	3 - 5	3.8 - 5.5	3.8 - 5.5	3.1 - 6	3.8 - 5.5
<b>P</b>	phosphorus	%	.3 - .8	.26 - .7	.28 - .7	.26 - .5	.26 - .7
<b>K</b>	potassium	%	2 - 6	2 - 3.8	2.8 - 5	1.8 - 4	2 - 3.8
<b>S</b>	sulfur	%	.25 - .5	.25 - .5	.35 - .9	.21 - .4	.26 - .5
<b>Ca</b>	calcium	%	.5 - 1.5	1 - 3	1.4 - 3	.81 - 3	1 - 3
<b>Mg</b>	magnesium	%	.3 - 2.5	.3 - 1	.2 - .6	.26 - .7	.3 - 1
<b>Na</b>	sodium	%	.03 - 3.7	0 - .1	.02 - .5	0 - .1	0 - .1
<b>Zn</b>	zinc	ppm	15 - 80	21 - 70	22 - 50	20 - 50	20 - 70
<b>Fe</b>	iron	ppm	50 - 200	30 - 250	30 - 200	50 - 450	30 - 250
<b>Mn</b>	manganese	ppm	25 - 360	25 - 200	30 - 250	30 - 300	25 - 200
<b>Cu</b>	copper	ppm	5 - 30	8 - 29	4 - 25	7 - 20	8 - 29
<b>B</b>	boron	ppm	30 - 80	30 - 80	25 - 54	20 - 60	30 - 80