

LANDSCAPE MANAGEMENT

SG

OCTOBER 1989

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MY PRIMARY BUSINESS AT THIS LOCATION IS:
(PLEASE CHECK ONE ONLY IN EITHER A, B OR C)

A. LANDSCAPING/GROUND CARE AT ONE OF THE FOLLOWING TYPES OF FACILITIES:

- 0005 Golf courses
- 0010 Sport complexes
- 0015 Parks
- 0020 Rights-of-way maintenance for highways, railroads & utilities
- 0025 Schools, colleges & universities
- 0030 Industrial & office parks/plants
- 0045 Condominiums/apartments/housing developments/
hotels/resorts
- 0050 Cemeteries/memorial gardens
- 0060 Military installations & prisons
- 0065 Airports
- 0070 Multiple government/municipal facilities
 Other type of facility (please specify)

B. CONTRACTORS/SERVICE COMPANIES/CONSULTANTS:

- 0105 Landscape contractors (installation & maintenance)
- 0110 Lawn care service companies
- 0112 Custom Chemical Applicators
- 0125 Landscape architects
- 0135 Extension agents/consultants for horticulture
 Other contractor or service
(please specify) _____

C. SUPPLIERS:

- 0205 Sod growers
- 0210 Dealers, Distributors
 Other supplier (please specify)

What is your title? (please specify) _____

I would like to receive (continue receiving)

LANDSCAPE MANAGEMENT each month: YES NO

Your Signature: _____ Date: _____



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DULUTH, MINNESOTA

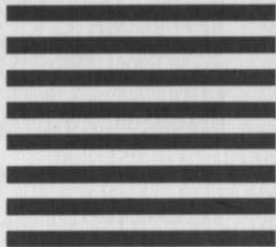
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MANAGEMENT**

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by Roger Funk, Richard Rathgens, The Davey Company

Essential Elements

Element	Percent of Plant Tissue**	Element	Percent of Plant Tissue**
Oxygen	45	Sulfur	0.1
Carbon	45	Iron	0.01
Hydrogen	6	Chlorine	0.01
Nitrogen	1.5	Manganese	0.005
Potassium	1.0	Zinc	0.002
Calcium	0.5	Boron	0.002
Phosphorus	0.2	Copper	0.0006
Magnesium	0.2	Molybdenum	0.00001

* Adapted from: B.R. Stout, 1961. Proceedings of 9th Annual California Fertilizer Conference, pp 21-23.

** These percentages vary from different species and for the same species grown under different conditions.

Forms Available to Green Plants

Elements	Available forms	Elements	Available forms
1. Macronutrients		2. Micronutrients	
Nitrogen	(N) NO_3^- , NH_4^+ , Urea (some)	Iron	(Fe) Fe^{++} , Fe^{+++}
Phosphorus	(P) HPO_4^{--} , H_2PO_4^-	Manganese	(Mn) Mn^{++} , Mn^{+++}
Potassium	(K) K^+	Copper	(Cu) Cu^+ , Cu^{++}
Calcium	(Ca) Ca^{++}	Zinc	(Zn) Zn^{++}
Magnesium	(Mg) Mg^{++}	Boron	(B) BO_3^{--}
Sulfur	(S) SO_4^{--} , SO_3^-	Molybdenum	(Mo) MoO_4^{--}
		Chlorine	(Cl) Cl^-

Salt Indexes

Fertilizer	Formula	%N	%P ₂ O ₅	%K ₂ O	Salt Index	Partial** Salt Index
Nitrogen sources						
Ammonium nitrate	NH ₄ NO ₃	35.0	—	—	104.7	2.99
Ammonium sulfate	(NH ₄) ₂ SO ₄	21.2	—	—	69.0	3.25
Sodium nitrate	NaNO ₃	16.5	—	—	100.0	6.06
Potassium nitrate	KNO ₃	13.8	—	—	73.6	5.34
Urea	H ₂ NCONH ₂	46.6	—	—	75.4	1.62
Natural organic		5.0	—	—	3.5	0.70
Monoammonium phosphate	NH ₄ H ₂ PO ₄	12.2	—	—	29.9	2.45
Diammonium phosphate	(NH ₄) ₂ HPO ₄	21.2	—	—	34.2	1.61
Phosphorus Sources						
Superphosphate	Ca(H ₂ PO ₄) ₂ + CaSO ₄	—	20.0	—	7.8	0.39
Triple superphosphate	Ca(H ₂ PO ₄) ₂	—	48.0	—	10.0	0.21
Monoammonium phosphate	NH ₄ H ₂ PO ₄	—	61.7	—	29.9	0.49
Diammonium phosphate	(NH ₄) ₂ HPO ₄	—	53.8	—	34.2	0.64
Monopotassium phosphate	KH ₂ PO ₄	—	52.2	—	8.4	0.16
Potassium Sources						
Potassium chloride	KCl	—	—	60.0	116.3	1.94
Potassium nitrate	KNO ₃	—	—	46.6	73.6	1.58
Potassium sulfate	K ₂ SO ₄	—	—	54.0	46.1	0.85
Monopotassium phosphate	KH ₂ PO ₄	—	—	34.6	8.4	0.24
* Adapted from: Rader, Jr., L.F., L.M. White and C.W. Whittaker, 1943. The Salt Index—A Measure of the Effect of Fertilizers on the Concentration of the Soil Solution. Soil Science Volume 55, pp 201-218.						
** Calculated per unit of N, P ₂ O ₅ , or K ₂ O.						

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