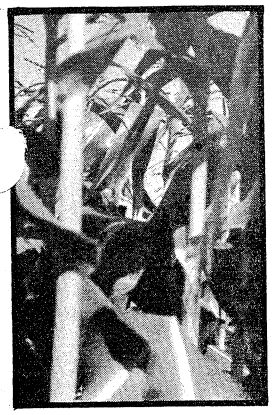
1-1-1900

Forage Mixtures for Indiana Soils

Lester H. Smith

Maurice E. Heath



AGRONOMY GUIDE

PURDUE UNIVERSITY

COOPERATIVE EXTENSION SERVICE PURDUE UNIVERSITY

AY-182

Forage Mixtures

Forage Mixtures for Indiana Soils

Lester H. Smith and Maurice E. Heath, Agronomy Department

Choosing the correct seeding mixture depends upon the class of livestock, the soil improvement program and the factors listed in Table 1.

Table 1. Forage mixture according to soil type and drainage, fertility level, use and pH[a/]

Soil type and drainage	Medium to high fertility (P 31 or above; K 165-300; pH 6.0-7.0)		Low fertility (P 0-30; K 0-165)
	pH 6.0-6.4	pH 6.5+	pH 5.9 and below
Excessively Drained			
Elston, Warsaw sandy loams (A,H)[b/], Plainfield, Chelsea	2[c/], 4[d]	1, 2[c/]	4, 5
Bloomfield sands (A,H,O)	2[c/], 4, 6	1, 2[c/], 4	4, 5[e/]
Steep soils			
Fairmount, Corydon, Weikert and Gilpin (ReskIm)	2[c/], 4, 9[c/]	1, 2[c/], 3, 4, 9[c/]	5, 10, 11[c/]
Moderately, Well and Well-Drained Silt Loams Usually 3-4% Slope or Over			
Moderately leached Russell, Miami, Parr, Sidell, Morley, Alford, Princeton (C, E, F, G, O, P)[b/]	4, 9, 2[c/], 8[c/]	1, 3, 6, 7, 2[c/], 8[c/]	4, 5[e/], 6, 8[c/f/]
Strongly leached Cincinnati, Rossmount, Zanesville, Hosmer and with restrictive "pans" (I, J, L, P)	4, 8	1, 3, 6, 7[g/]	4, 5, 8[c/], 10, 12
Strongly leached and Crider, Bedford, Switzerland, Wellston, Wheeling (K, L, M)	4, 8, 2[c/], 8[c/], 8[c/]	1, 6, 3, 7, 2[c/], 8[c/f/]	4, 5, 6, 10, 11[c/], 8[c/f/]

Cooperative Extension Work in Agriculture and Home Economics, State of Indiana, Purdue University and U. S. Department of Agriculture Cooperating. H. G. Diesslin, Director, Lafayette, Ind. Issued in furtherance of the Acts of May 8 and June 30, 1914.

Table 1 (Cont.)

Soil type and drainage	Medium to high fertility (P 31 or above, K 165-300; pH 6.0-7.0)		Low fertility (P 0-30; K 0-165)
	pH 6.0-6.4	pH 6.5+	pH 5.9 and below
Somewhat Poorly Drained - Usually On 1-2% Slopes			
Moderately leached Crosby, Fincastle, Blount, Raub, Whittaker, IVA and McGary silt loams (C, E, D, F, G, H, N, O)	4, 8[c], 2[c]	1[h], 7[h]	10[e], 8[c], 9[c]
Strongly leached Avonburg, Vigo, Bartle, Johnsburg and Weinbach silt loams with restrictive subsoil pans (H, I, J, L, M, N)	4, 5, 7, 2[c]	1[h/i], 4, 7, 2[a]	4, 5, 10, 11[c], 10[c]
Poorly Drained - Level			
Light colored silt loams such as Clermont, Robinson, Guthrie and Mullins (J, L, M, N)	4, 5, 7, 9[c]	1[h/i], 4, 7, 9[c]	4, 5, 9[c], 10, 11[c]
Dark colored soils like Brookston, Chalmers, Westland, Pewamo, Hoytville, Rensselaer, Runnymede and Montgomery clays and clay loams (A, B, C, D, E, F, G, H)	4, 7, 9, 2[c], 8[c]	1[h/i], 3, 7, 2[c], 8[c]	4, 7, 9, 9[c]
Maumee, Gilford sandy loams (A, D, N)		7 [g/i]	
Dark colored acid soils like Newton and Wanatah			4, 9[c]

a/ Numbers represent mixtures given in Table 2.
b/ The capital letters in parenthesis represent the soil types shown in Figure 1.
c/ Primarily permanent pasture mixtures. All other numbers not labeled c/ are for hay, silage, and/or rotation grazing.
d/ pH of 6.0 or above is recommended for any adapted legume; pH below 6.0 restrict to legumes such as red clover and Ladino
e/ Use only in Southern Indiana
f/ Fertility and pH must be raised before introducing trefoil or alfalfa.
g/ Alfalfa may heave out
h/ Only when the drainage is adequate
i/ No. 7 mixture is preferred when drainage is not adequate and alfalfa may go out

Table 2. Seeding mixtures as specified in Table 1.

Mixture No.	Mixtures and Seeding Rates in Pounds per Acre
1.	Alfalfa--8-10 Timothy--2-4 or Bromegrass--5-7 or Orchardgrass--4-6
2.[a/]	Birdsfoot trefoil--4-6 Timothy--2-4 or Bluegrass--2-4
3.	Alfalfa--4-6 Red clover--4-6 Orchardgrass--4-6 or Bromegrass--5-7 or Timothy--2-4
4.	Red clover--6 Orchardgrass--4-6
5.	Lespedeza (Southern Indiana)--15 Orchardgrass--4-6 or Tall fescue--10-15
6.	Alfalfa--6-8 Bromegrass--5-7 or Orchardgrass--4-6 or Timothy--2-4 Ladino--1/4 or Red clover--2-4
7.[a/]	Birdsfoot trefoil--4-6 Bluegrass--2-4 or Timothy--2-4
8.[a/]	Timothy--2-4 or Tall fescue--6-8 or Orchardgrass--4-6 Red clover--6-8 Ladino--1/4
9.[a/]	Reed canarygrass--5-7 or Tall fescue--6-8 or Orchardgrass--4-6 Ladino--1/4 Alsike--2
10.	Tall fescue--10-15 White clover--1 Red clover--6 Lespedeza--8
11.[a/]	Tall fescue--15-20

a/ Primarily permanent pasture mixtures. Other recommendations are for hay silage, and/or rotation grazing.

Table 3. Forage for hogs

Forages	lb./A
Sows and pigs - Pasture or Silage Mixture	
Alfalfa	8
Ladino	.5
Bromegrass, or	5
Orchardgrass	4
Sows and pigs	
Wheat	6 pecks each way; (total of 12 pecks)
Growing pigs - on level land only	
Ladino clover	1
Alfalfa	10-12
Hogs (all ages)	
Rape	10
Oats	(bu.) 1
	(Seeded by mid-April)

Table 4. Horse Pasture

Forage in Mixture	Rate per Acre lb.
Kentucky bluegrass	4
Orchardgrass	4
Ladino clover	.25
Kentucky bluegrass	4
Bromegrass	5
Ladino clover	.25
Kentucky bluegrass	4
Birdsfoot trefoil	5

Table 5. Mixtures to use for soil improvement

Grasses	Lb./A	Cereals	Bu./A.	Legumes	Lb./A
Timothy	3 (fall)	Winter rye	1.5	Sweetclover	10
	6 (spring)	Barley	1.5	Alfalfa	10-12
Orchardgrass	6			Red clover	6
Tall fescue	6			Ladino clover	1
				Korean lespedeza	15

Table 6. Supplemental Pasture Seedings

Pasture	Lb./A.
Spring seeded	
Flemish or alfalfa	15
Summer Annuals	
Sudangrass--or Sorghum-sudan	25
Korean lespedeza	15 to 20
Winter Annuals	
Hairy vetch (20 lb.) can be planted by mid-September with any of these winter cereals preferably for silage on sandy soil or in areas not used for grain harvest.	
Grain	**Pecks/A**
Rye	6-8
Winter oats	8-10
Winter barley	8-10
Wheat	6-8

Table 7. Rates of seeding single forage crops

Crop	Lb./A
Alfalfa	8-10
Medium red clover	6-8
Mammoth red clover	6-8
Alsike clover	2-4
Ladino clover	1-2
Sweetclover, biennial	10-12
Korean lespedeza	12-15
Domestic ryegrass	15-20
Reed canarygrass	6-8
Birdsfoot trefoil	4-6

PRINCIPAL SOIL TYPES OF THE SOIL REGIONS OF INDIANA

A—Maumee, Newton, Tyner and Plainfield sands; mucks; Door, Tracy, Fox, Warsaw, Oshtemo, Rensselaer and Gilford loams and sandy loams.

B—Hoytville and Montgomery silty clays; Milford and Rensselaer silty clay loams; Nappanee, Haskins, Darroch and Strole silt loams and loams.

C—Parr and Odell silt loams and loams; Sidell, Raub, Elliott, and Flanagan silt loams, Chalmers and Romney silty clay loams.

D—Miami, Crosby, Brookston, Bremen, Blount, Fox, and Hillsdale loams and sandy loams; Chelsea loamy sand.

E—Crosby and Miami silt loams; Brookston and Kokomo silty clay loams.

F—Blount, Morley and Nappanee silt loams; Pewamo silty clay loam.

G—Fincastle, Russell, Miami, Hennepin, Reesville and Ragsdale silt loams; Brookston and Kokomo silty clay loams.

H—Genessee, Eel, Haymond, Nolin, Huntington, Fox, Ockley, Wea, Bartle, Elkinsville, Martinsville, and Wheeling silt loams; Westland and Mahalasville silty clay loams.

I—Vigo, Ava, Cincinnati, Parke, Hickory, Iva, Wilbur and Stendal silt loams.

J—Avonburg, Clermont, Cincinnatti, Rossmoyne, Hickory, Jennings, Colyer, Grayford, Wakeland, Stendal and Bonnie silt loams.

K—Switzerland, Allenville, and Huntington silt loams, and Fairmont silty clay loam.

L—Weikert and Berks channery silt loams; Gilpin, Wellston, Zanesville, Cuba and Stendal silt loams.

M—Crider, Hagerstown, Frederick, Bedford, Corydon, Haymond and Huntington silt loams.

N—Otwell, Haubstadt, Dubois, Robinson, Bartle, Peoga, Parke, Markland, McGary, and Henshaw silt loams; Zipp, Montgomery and Patton silty clay loams.

O—Bloomfield loamy sand, Princeton and Ayrshire sandy loams.

P—Alford, Muren, Iva, Iona, Reesville, Ragsdale, Hosmer and Adler silt loams.

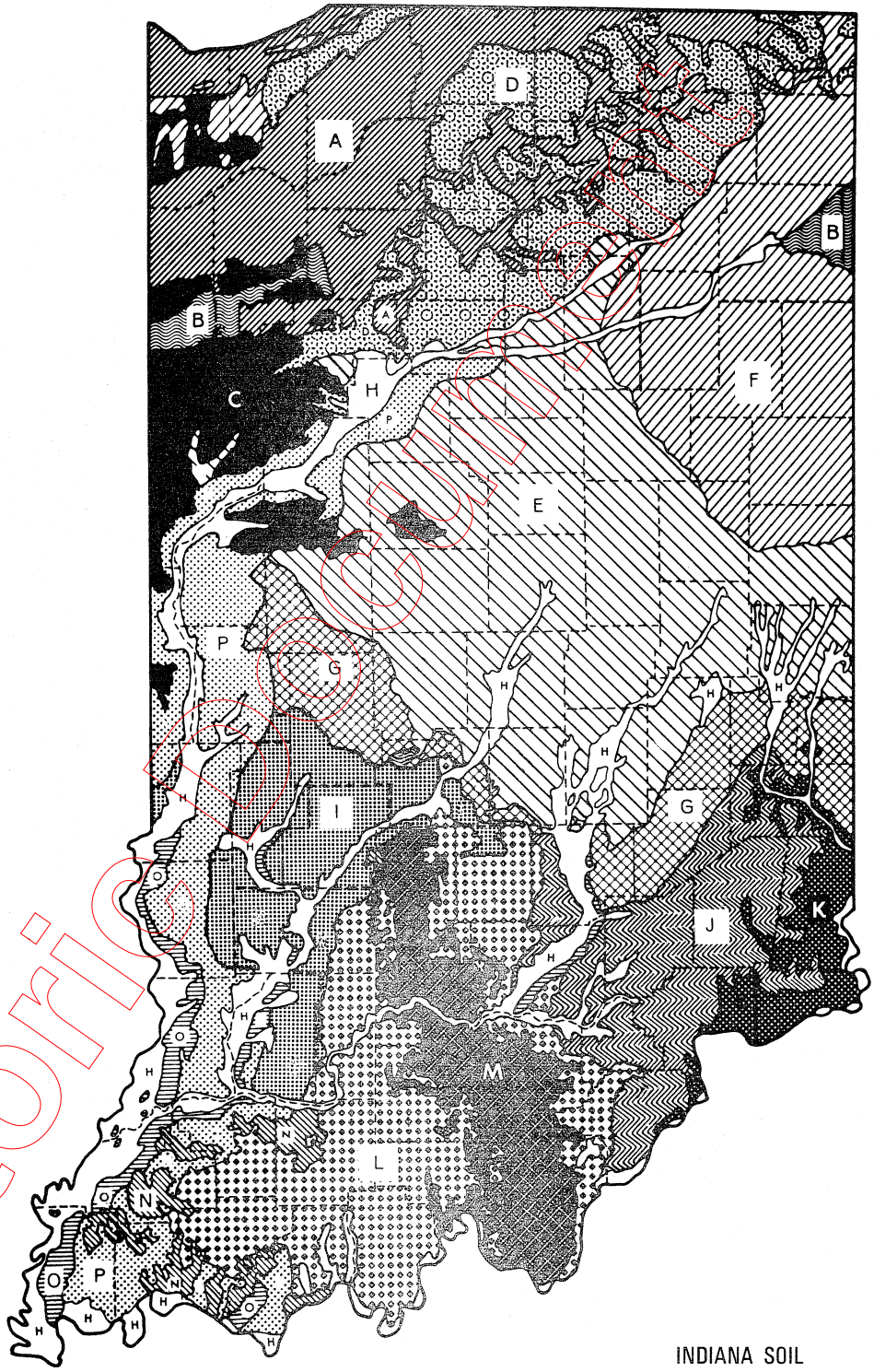


Figure 1. Soil Regions of Indiana

INDIANA SOIL SURVEY
Purdue University
Agricultural Experiment Station
and
U.S. Department of Agriculture