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Re-planning Missouri Farms

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A statement sometimes heard: "It is useless to plan farm operations because weather and price conditions may change and expected results will not follow the plan."

A statement never heard: "A ship's rudder is useless since it cannot be set for a given direction for the duration of the voyage, because ocean conditions change."

The two statements are comparable. A farm plan, like a ship's rudder, is a guide intelligently operated to suit changing conditions, and not a path to be followed blindly. It is about as disastrous to farm without a plan as to start an ocean voyage in a ship without a rudder. This circular is aimed to aid the farmer who likes to plan his business.

GOOD MANAGEMENT THE RESULT OF A FEW SIMPLE PRINCIPLES

1. Net *total farm* income is the goal. All things must fit together with that in mind rather than individual enterprise returns.

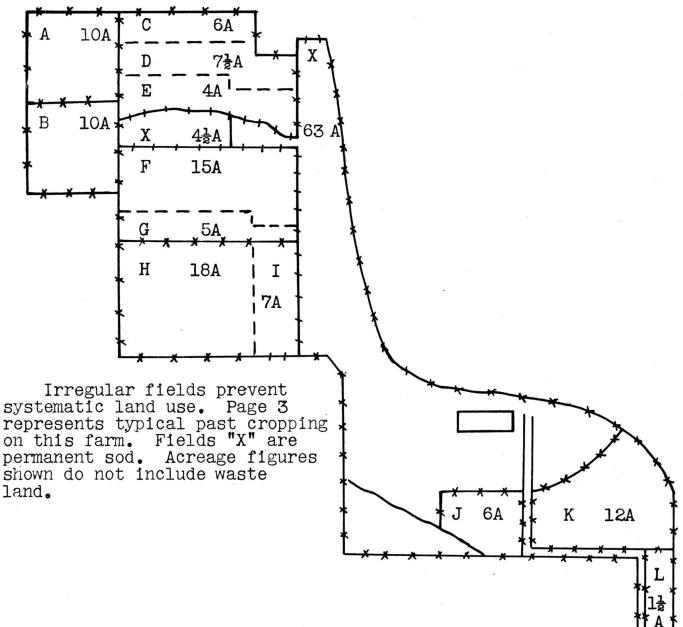
2. Each farm is a separate set of problems. Results of other farm analyses can be used in a general way but cannot give the right answer for any particular farm.

3. Nothing important can be left out. Planning a crop rotation, for example, does not represent good management unless economical utilization of crops and pastures is also planned. How do intentions affect soil conservation, feed supply, feed consumption, labor requirements, cash expenses, need for credit, total income? Good management means answering the question "will it add more to the income than it costs," with regard to every farm enterprise, practice, or financial decision.

4. Good management is *forward* looking. Every undertaking is based on prospects. The only purpose of management is to guide production toward greater *future* net returns.

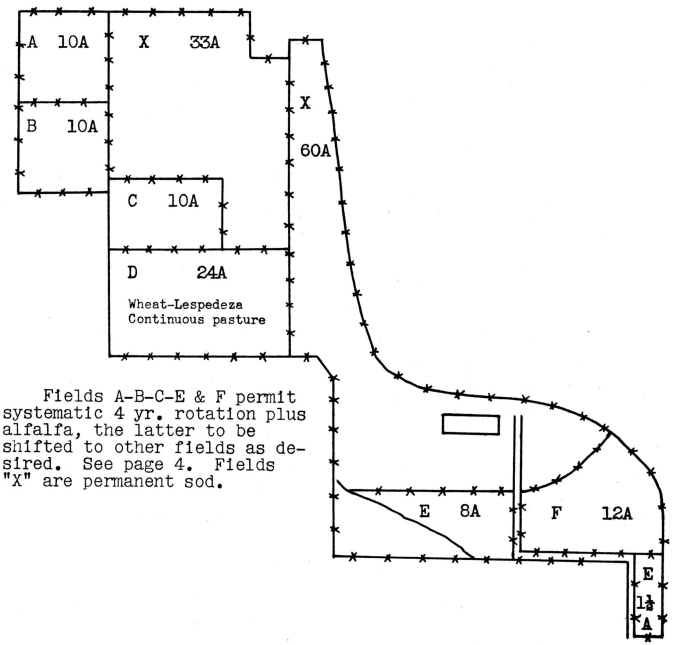
A MISSOURI FARM LAYOUT

PLAN A



Irregular fields prevent systematic land use. Page 3 represents typical past cropping on this farm. Fields "X" are permanent sod. Acreage figures shown do not include waste land.

PLAN B



Fields A-B-C-E & F permit systematic 4 yr. rotation plus alfalfa, the latter to be shifted to other fields as desired. See page 4. Fields "X" are permanent sod.

Plan A throughout this illustration represents the present system and Plan B a suggested reorganization. On pages 3 and 4, feed grain equivalent to corn for feeding purposes is obtained by multiplying bushels of each grain not to be sold, by factors as follows: corn x 1; wheat x 1.18; oats x .4; barley x .77. These results added represent bushels of "corn equivalent".

Cropping Plan "A" -- Do not include here land used only for permanent pasture

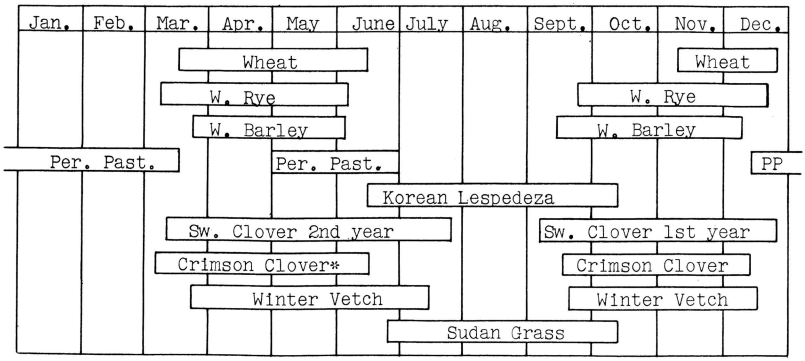
Field	Net Crop A	Next Year			Year			Year			Year		
		Crop	A	Prod.	Crop	A	Prod.	Crop	A	Prod.	Crop	A	Prod.
A	10	Corn	10	200	Wheat	10	200	Sudan	10	Past.	Lespedeza	10	Past.
B	10	Corn Sorgo	3 7	60 42	Wheat	10	200	Lespedeza	10	Past.	Lespedeza	10	Past.
C	6	Oats	6	120	Wheat	6	120	Sorgo	6	36	Wheat	6	120
D	7½	Oats	7½	150	Corn	7½	150	Wheat	7½	150	Wheat	7½	150
E	4	Oats	4	80	Idle	4	-	Oats	4	80	Wheat	4	80
F	15	Soybeans	15	19	Oats Soybeans	15	300 15	Timothy	15	Past.	Barley-S.B.	15	450 15
G	5	Wheat	5	100	Soybeans	5	6	Barley Soybeans	5	150 6	Barley Soybeans	5	150 6
H I	18 7	Timothy	25	Past.	Corn Sorgo	18 7	360 42	Wheat Oats	18 7	360 140	Timothy Wheat	18 7	Past. 140
J	6	Barley	6	Past.	Oats	6	120	Wheat	6	120	Alfalfa	6	18
K	12	Wheat	12	240	Clover	12	Past.	Corn	12	240	Corn	12	240
L	1½												
On Hand		Oats	1½	30	Corn	1½	30	Soybeans	1½	2	Alfalfa	1½	4
Amt.	$	Totals											
		Corn	13	260	Corn	27	540	Corn	12	240	Corn	12	240
		Oats	19	380	Oats	21	420	Oats	11	220	Oats	-	-
		Wheat	17	340	Wheat	26	520	Wheat	31½	630	Wheat	24½	490
								Barley	5	150	Barley	20	600
		Hay	15	19	Hay	20	21	Hay	6½	8	Hay	27½	43
		Silage	7	42	Silage	7	42	Silage	6	36			
Feed Grain - Corn equivalent			x	813	x x x	x	1322	x x x	x	1186	x x x	x	1280

Cropping Plan "B" -- Do not include here land used only for permanent pasture.

Field	Net Crop A	Next Year			Year			Year			Year		
		Crop	A	Prod.	Crop	A	Prod.	Crop	A	Prod.	Crop	A	Prod.
A	10	Silage	10	60	Wheat	10	200	B. - Sw. Cl.	10	300	Sweet Clover	10	Past.
B	10	Wheat	10	200	B. - Sw. Cl.	10	300	Sweet Clover	10	Past.	Silage	10	60
C	10	B. - Sw. C.	10	300	Sweet Clover	10	Past.	Silage	10	60	Wheat	10	200
E	9½	Alfalfa	9½	30	Alfalfa	9½	30	Alfalfa	9½	30	Alfalfa	9½	30
F	12	Sweet Clover	12	Past.	Silage	12	72	Wheat	12	240	B. - Sw. Cl.	12	360
On Hand													
Amt.	$	Totals											
		Wheat	10	200	Wheat	10	200	Wheat	12	240	Wheat	10	200
		Barley	10	300	Barley	10	300	Barley	10	300	Barley	12	360
		Hay	9½	30	Hay	9½	30	Hay	9½	30	Hay	9½	30
		Silage	10	60	Silage	12	72	Silage	10	60	Silage	10	60
Feed Grain - Corn equivalent			xx	467	x x x	xx	467	x x x	xx	514	x x x	xx	513

Field	Kind of Pasture	Acres	Pasture Capacity by Months - Plan "A"											
			J	F	M	A	M	J	J	A	S	O	N	D
G	Wheat	5				5	3							
K	Wheat	12				12	6							
J	Barley	6									3	6	6	
H & I	Timothy	25						12						
X	Permanent	11					11	11	7	6				11
X	Woods	55							5	5	5	5	5	
Total Units by Months						17	20	23	12	11	8	11	11	11
			Pasture Capacity by Months - Plan "B"											
D	Wh.-Lesp.	24				24	24	24	24	24	24			
B	Barley	10										10	10	
C	Sw.Cl.1st Yr.	10									10	15	15	
F	Sw.Cl.2nd Yr.	12			6	12	12	12						
X	Permanent	38	19	19	19		19	19						19
X	Woods	55				10			10	10		10		
Total Units by Months			19	19	25	46	55	55	34	34	34	35	25	19

Pasture Span for Central Missouri in an Average Season
(Chart supplied by Field Crops Dept.)



*Crimson clover recommended only for southern half of state.

Est. Income - Plan "A"				Feed Req. for Stock Fed for Sale						
To Be Sold	No.	Unit	Total Farm Sales	Produced on Farm				To Be Purchased		
Items	Wt. or Amt.	Price	$	Corn Equiv. bu.	Hay T	Silage T		Kind of Feed	Amt.	Cost
Milk (cwt.)	707	1.80	1273							
Cull cows (No.)	2	40	80							
Hogs (lbs.)	1400	8	112	91				Tankage	260	8
Eggs (Doz.)	2000	.20	400							
Cull Hens (lbs.)	280	.08	22							
Cockerels (lbs.)	200	.15	30							
Total Value				Feed Req. for Maintenance Stock						
Kind of Stock	No.	Value								
Milk cows	12	600		169	9	32		Bran C.S.M.	1.6T 1.0T	32 24
Yearling heifers	2	60		20	3	3				
Bull	1	100		20		3				
Ewes	5	30		9	1					
Sow	1	30		20				Tankage	60#	2
Hens	175	80		175				Mash	2.6T	92
Chicks to 12 weeks	270							Mash	.56T	28
Pullets 12-24 wks.	140			16				Mash	.35T	12
Work stock	4	240		160	6					
Total	XX	1140		680	19	38		Total Value of Feed to be Purchased		198
Est. Feed Prod. this plan	XX	XXX		813	19	42				
Difference	XX	XXX		133	-	4				

Est. Income - Plan "B"				Feed Req. for Stock Fed for Sale						
To Be Sold				Produced on Farm				To be Purchased		
Items	No. Wt. or Amt.	Unit Price	Total Farm Sales $	Corn Equiv. Bu.	Hay T	Silage T		Kind of Feed	Amt.	Cost
Milk (cwt.)	1228	1.80	2210							
Cull cows (No.)	3	40	120							
Hogs (lbs.)	1400	8	112	91				Tankage	300	9
Lambs (lbs.)	3640	9	328	52				L.S.M.	260	8
Cull Ewes (No.)	8	4	32							
Wool (lbs.)	400	25	100							
Eggs (Doz.)	2620	20	524							
Cull Hens (lbs.)	500	8	40							
Cockerels (lbs.)	200	15	30							
Total Value			3496	Feed Req. for Maintenance Stock						
Kind of Stock	No.	Value								
Milk cows	20	1000		400	16	50		C.S.M.	2T	60
Heifers 1-2 yrs	3	75			4	5		Corn	20	15
Heifers under 1 yr.	3	30		47	1	2		Corn	48	36
Bull	1	100			1	2		Corn	20	15
Ewes	50	300						Corn	70	52
Sow	1	30		20				Tankage	60#	2
Butcher hogs	5							Corn Tankage	65 200	48 6
Hens	250	125						Corn Mash	250 3T	187 105
Chicks to 12 wks.	270							Mash	.56T	28
Pullets 12-24 wks.	140							Corn Mash	18 .35T	13 12
Work Stock	4	240			6			Corn	160	120
Total	XX	1900		467	28	59				
Est. Feed Produced this plan	XX	XXX		467	30	60		Total value of feed to be purchased		716
Difference	X	X		-	2	1				

Estimated Cash Farm Expenses							
Plan "A"				Plan "B"			
Item	Amt.	Price	Cost	Item	Amt.	Price	Cost
Crop				Crop			
Thresh. wheat	340	.08	27	Comb. Wh. & Bar.	20 A	2.50	50
" oats	380	.04	15	Phosphate	4500	26.	60
Twine			15	Lime			20
Fertilizer			58	Alfalfa seed			6
Soybean seed	30	1.50	45	Sw. Cl. seed			15
Livestock				Livestock			
Bull charge			12	Bull & ram chg.			30
Veterinary			15	Veterinary			25
Chicks			35	Chicks			35
Bldgs. & Equip.				Bldgs. & Equip.			
Insurance			8	Insurance			15
Rep. on Equip.			12	Rep. on Equip.			12
				Used mower			45
Feed bought			198	Feed bought			716
Hired labor			26	Hired labor			26
Taxes or rent			95	Taxes or rent			95
Miscellaneous			15	Miscellaneous			15
1. Total			576	1. Total			1165
2. Net Cash: Sales this plan less item 1.			1341	2. Net Cash: Sales this plan less item 1.			2331

Inventory of Improvements			Inventory of Equipment		
Estimate average value for the year for each item and plan					
Kind of Improvement	Est. Value Plan A	Plan B	Kind of Equipment	Est. Value Plan A	Plan B
Dwelling	1700	1700	Wagons	50	50
Tenant house			Tractor & its Equip.		
Barn	1000	1000	Truck and Car		
Cattle shed	1000	1000	Portable engine		
Hog house	100	100	Plows	28	28
Poultry Houses			Disk & other harrows	80	80
Cribs or granaries			Cultivators	40	40
Silo	350	350	Roller		
Windmill			Corn binder	75	75
Machine shed	100	100	Corn planter	10	10
Fencing	225	425	Silo filler	50	50
			Grain binder	20	
Tiling			Drills & attachments	40	40
Unused limestone		100	Grinder, shellers, fan mills, etc.	45	45
			Mower	5	45
Total Imp. Inv.	4475	4775	Hay rake	20	20
			Other haying tools	35	35
			Orchard equipment		
			Harness	20	20
Estimated Business Summary			Dairy equipment	80	80
Net depreciation:			Poultry equipment	25	25
On imp. @ ____%	134	154	Portable houses	15	15
On equip. @ ____%	69	71	Manure spreader	40	40
Total depreciation	203	225	Shop tools	10	10
Value unpaid labor	720	720			
1. Total Cash Rec.	1917	3496			
2. Total Cash Exp.	576	1165			
3. Net Cash Rec.	1341	2331			
4. Depr./ unpd. labor	923	945			
5. Net Tot. Farm Inc.	418	1386			
6. Int. & Prin. Pyts.					-
7. Net Cash available (Item 3-item 6)			Total	688	708

Approximate amounts of feed used by different kinds of livestock

From data supplied by respective subject matter departments of the Missouri College of Agriculture. (Except as otherwise noted).

Figures assume healthy animals free from parasites, under better than average farm management.

1. Feed per head for Hogs Marketed at 200 lbs.

Spring Pigs		Fall Pigs
12 to 12½	Corn (bu.)	12 to 14
40 to 50	Tankage (lbs.)	60 to 65

2. Feed per sow for each litter from breeding to farrowing
   Corn - 10 bushels; Tankage - 30 lbs.
   When sows are in good condition, about ½ of the grain, by weight, may consist of oats.

3. Feed per beef cow per year (assuming 240 to 270 days pasture) without silage: 1 ton legume hay and 10 shocks fodder (Corn off); with silage: 1/2 ton silage and .6 ton legume hay, or 100 lbs. C.S.M. Supplementary winter pasture will reduce roughage needed for wintering.

4. Feed per native spring calf marketed by Nov. or Dec. at 675 to 700 lbs.
   Corn - 25 bu. Hay - .075 ton C.S.M. - 75 lbs.

5. Feed per ewe per year and per lamb for feeding period stated

	Past. days	Corn bu.	Oats bu.	Leg.H* tons	Prot. lbs.	Other dry rough.T.
a. Ewes with mixed roughage - - -	270	1	2	.15	10	.15
b. Ewes with legume roughage - - -	270	1	2	.25	0	0
c. Lambs sold at 4 months - - - -	0	1	0	.05	5	0
d. Lambs weaned, pasture 100 days then grain fed	140	1¼	0	0	5	0
e. Western lambs	0	2	½	.1	15	0

   * Supplementary pasture may eliminate roughage almost entirely in mild winters.

6. Feed per head for average work stock on basis of heavy work 7 months of the year

   a. Grain - (1) Corn 56 bu.; or (2) corn 34 bu. and oats 59 bu.; or (3) oats 138 bu.
   b. Hay - (1) Legume hay 1.8 tons; or (2) legume hay 1.06 tons and other hay .74 tons.

7. Feed for Colts (per head)

   a. 1st. year: 9 bu. corn; 17 bu. oats; 270 lbs. bran; 1 ton hay
   b. 2nd year: 12 bu. corn; 21 bu. oats; 350 lbs. bran; 1.3 tons hay

8. Feed per Dairy Cow per year assuming 7500 lbs. production. Figures are based on limited feeding of 1 lb. of grain to 5 lbs. milk for large breeds, and 1 to 4 for small breeds.

a. With straight legume roughage

Size of Breed	Corn bu.	Oats bu.	Bran lbs.	Protein lbs.	Bone Meal lbs.	Salt lbs.
Large	16	9	300	0	15	15
Small	20	11	375	0	19	19

b. With non legume roughage

Large	11	14 or	435	430	28	13
Small	13	17 or	544	538	35	17

c. With mixed roughage

Large	16	11 or	360	225	22	15
Small	19	14 or	450	281	28	19

d. Where grain is fed to dry cows only for two months (May reduce milk flow by from 20 to 30 per cent)

2	-	58	36	-	-

Note: Substitutes per bushel of corn: Barley 1.2 bu.; kafir 1 bu.; wheat 1 bu. (latter up to ½ corn). Substitutes for bran: Alfalfa meal or wheat middlings pound for pound, or 3 bu. of oats per 100 lbs.

e. Tons of roughage assuming 5 months feeding period, add 30% for cows not fed grain.

Large - .9 tons hay and 2.7 tons silage; or 1.8 tons hay
Small - .6 tons hay and 2.0 tons silage; or 1.25 tons hay

9. Feed to raise a dairy heifer, assuming a liberal supply of pasture and roughage. Best growth occurs during first year and liberal grain feeding is recommended for that period. During second year more roughage can be utilized and most of grain during that period is fed 2 months prior to freshening.

	Whole Milk lbs.	Skim Milk lbs.	Corn bu.	Oats bu.	Bran lbs.	Oil Meal lbs.	Hay Tons	Silage Tons
		a. First Year						
Large	100	2824	7.4	13	63	63	.3	.3
Small	80	2252	5.8	10	57	57	.3	.3
		b. Second Year						
Large	0	0	6.1	10.5	62	62	.9	.9
Small	0	0	5.9	10.2	53	53	.8	.8

Note: When silage is not used add .1 and .3 ton of hay for the first and second years respectively.

10. Feed per Head for Cattle on Feed. (Data based on feeding of good to choice quality cattle)

a. Yearlings in dry lot Ration	Days on Feed	Corn bu.	Leg. Hay tons	Silage tons	Protein lbs.	Initial wt.	Final wt.
Corn, Leg. Hay and Protein Supplement	140	38	.23	0	211	481	848
b. Calves purchased in the fall and fattened on grass the following summer							
Well wintered and full fed on grass	158 (winter)	11	.31	.87	81	345	596
	168 (grass)	36	0	0	283	596	938
Total for winter and grass period	326	47	.31	.87	364	345	938
Roughed through winter and full fed on grass	158 (winter)	0	.36	1.13	0	349	496
	168 (grass)	33	0	0	265	496	908
Total for winter and grass period	326	33	.36	1.13	265	349	908
Roughed through winter, grazed 56 days without grain, then full fed on grass for 112 days. (1)	158 (winter)	0	.36	1.13	0	348	488
	168 (grass)	24	0	0	188	488	821
Total for winter and grass period	326	24	.36	1.13	188	348	821

(1) Not long enough grain feeding period in which to secure satisfactory finish on cattle of good quality.

c. Yearlings feed silage and legume hay in dry lot

Full feed of corn, leg. hay, silage and protein supplement	98	25	.11	.65	139	596	837
Same as above except half feed of grain	126	17	.36	1.30	95	596	846
Roughage at will for 56 days then full fed grain 70 days	126	20	.27	1.39	110	596	868

d. Two year old cattle fed silage and legume hay - dry lot

Corn and C. S. cake 10 to 1 by wt., full fed	78	19	.08	.4	107	832	996
½ feed of above ration	98	13	.15	1.28	74	831	973
Roughage at will 56 days, then full fed above grain ration 42 days (2)	98	22	.17	1.69	63	831	997

(2) A longer feed of silage before grain is added may usually be advisable.

Unit Values Pasture Consumption by Different Groups of Livestock for a Given Period - - Number to equal 1 cow grain fed.

Cows grain fed	Other aged cattle	Steers on feed	Calves on feed	Other Calves	Stockers 1 to 2 yrs.	Mature sheep	Spring lambs sold late	Horses at work	Idle work stock	Colts under 2 yrs.	Sows	Shoats
1	.9	1.3	3.3	2.5	1.1	6.6	16.6	2	1	1.25	9.1	25

11. Approximate feed requirements using typical Corn Belt rations with different weights, ages, periods of feeding and grades of feeder cattle. (From publication "Cattle Handbook for the Grower and Feeder" by the National Livestock Marketing Association.)

Feeder Grade	Feeding Period (Days)	Total Gain (Lbs.)	Total Feed Per Animal			
			Corn	Corn Silage	Alfalfa Hay	Cotton-seed Meal
			Bu.	Tons	Tons	Lbs.
Steer Calves - (350-500#)						
Fancy	300	600	66	1.17	.20	600
Choice	255	492	41	1.28	.25	467
Good	225	398	24	1.66	.27	358
Medium	210	321	16	1.91	.28	273
Common	210	258	12	1.88	.27	206
Yearling Steers - (500-700#)						
Fancy	270	572	74	1.29	.22	555
Choice	225	461	45	1.44	.27	424
Good	195	370	27	1.79	.29	322
Medium	180	301	17	2.18	.29	247
Common	165	226	11	2.03	.26	174
Inferior	150	172	8	1.71	.22	124
Two-Year-Old Steers - (650-900#)						
Fancy	210	477	69	1.10	.19	448
Choice	180	396	43	1.29	.23	352
Good	165	346	28	1.74	.27	291
Medium	150	285	17	2.36	.28	225
Common	150	244	14	2.53	.28	181
Inferior	120	170	9	1.91	.22	117

12. a. Feed per 100 hens: 87 bu. grain and 1.6 tons mash
    b. Feed per turkey hen for laying period (Dec. 1 to June 1): .6 bu. grain and 34 lbs. mash.
    c. Toms each: 1.1 bu. grain and 64 lbs. mash.

13. Feed for chicks, and poults, (Per 100) from start to maturity -

    a. For heavy breeds (chicks)
        (1) First 12 weeks -760 lbs. mash
        (2) 12 to 24 weeks -720 lbs. mash and 19 bu. corn

    b. For light breeds (chicks)
        (1) First 10 weeks -420 lbs. mash
        (2) 10 to 20 weeks -500 lbs. mash and 13 bu. corn

    c. For poults
        (1) First 12 weeks -1200 lbs. mash
        (2) 12 to 26 weeks -3200 lbs. mash and 32 bu. corn

Rough Guides for Estimating pounds of Grain and Supplemental Feeds

	12 ears corn	1 gal. shelled corn	1 gal. wheat or Kafir	1 gal. or 1 bundle 30. bu. oats	1 gal. barley	1 gal. bran	1 gal. shorts	½ gal. tankage	1 pt. L.S.M. or C.S.M.
Pounds	7½	7	7½	4	6	1 3/4	3½	4	6/10

Kind of Stock / Land Class	Approximate Number of Acres of Different Crops and Pastures Needed for Livestock Indicated. On basis of crops adapted to different land classes and recommended rations, including substitutes.																	
	Feed Grain				Legume Hay				Rotation Pasture					Permanent Pasture				
	I	II	III	IV	I	II	III	IV	I	II	III	IV	V	I	II	III	IV	V
Beef cow & fed calf sold in fall	.6	.8	1.2	1.6	.42	.7	1.1	1.4	.9	1.4	2.1	2.6	3.5	1.6	1.9	2.5	3.3	4.4
Yrlgs. full fed in dry lot without silage 140 days	.95	1.27	1.52	2.33	.09	.15	.23	.31	-	-	-	-	-	-	-	-	-	-
Dairy cow full grain rations	.77	.96	1.16	1.6	.72	1.2	1.8	2.4	.7	1.0	1.5	1.9	2.5	1.5	1.75	2.25	3.0	4.0
Dairy cow without grain except when dry	.09	.11	.14	.2	.93	1.56	2.34	3.12	.9	1.3	1.9	2.47	3.25	1.9	2.27	2.92	3.9	5.2
Dairy heifers 1st yr.	.5	.7	.8	1.1	.16	.26	.4	.53	.28	.4	.6	.76	1.0	.6	.7	.9	1.2	1.6
Dairy heifers 2nd yr.	.45	.55	.66	.9	.48	.78	1.2	1.6	.6	.9	1.3	1.7	2.25	1.3	1.6	2.0	2.7	3.6
40 ewes with lambs sold early	2.8	3.7	5.4	6.8	2.6	5.3	8.0	9.2	5.9	8.4	12.6	16.0	21.0	12.6	14.7	18.9	25.2	33.6
50 western lambs fed in dry lot	3.2	4.16	5.0	7.4	5.0	3.3	5.0	6.66	-	-	-	-	-	-	-	-	-	-
1 sow unit inc. 13 pigs sold at 200 lbs.	5.0	6.6	10.0	12.0	-	-	-	-	.4	.6	.9	1.2	1.6	-	-	-	-	-
200 hens	5.3	7.1	8.6	10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Where silage is used, acreages of hay and silage, respectively are:

Land Class-	I	II	III	IV
For beef cows	.2 and .1	.4 and .1	.6 and .1	.7 and .2
For dairy cows grain fed	.3 and .2	.6 and .2	.9 and .3	1.1 and .45
For dairy cows not grain fed	.4 and .26	.7 and .26	1.1 and .4	1.3 and .6

Kind of Stock / Land Class	Approximate Number of Acres of Different Crops and Pasture Needed for Livestock Indicated On the basis of crops adapted to different land classes and recommended rations, including substitutes																					
	Feed Grain				Legume Hay				Silage				Rotation Pasture					Permanent Pasture				
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	V	I	II	III	IV	V
YEARLINGS: Full fed dry lot 98 days	.62	.83	1.0	1.55	.04	.07	.11	.15	.05	.05	.06	.11	-	-	-	-	-	-	-	-	-	-
½ fed 126 days	.42	.56	.68	1.05	.14	.24	.36	.48	.11	.11	.13	.22	-	-	-	-	-	-	-	-	-	-
Roughage 56 days, full fed 70 days	.5	.66	.8	1.25	.11	.18	.27	.36	.12	.12	.14	.23	-	-	-	-	-	-	-	-	-	-
2 YR. OLDS: Full fed dry lot 78 days	.47	.63	.76	1.15	.03	.05	.08	.11	.03	.03	.04	.06	-	-	-	-	-	-	-	-	-	-
½ fed 98 days	.32	.43	.52	.8	.06	.1	.15	.20	.11	.11	.13	.21	-	-	-	-	-	-	-	-	-	-
Roughage 56 days, full fed 42 days	.55	.73	.88	1.35	.07	.11	.17	.23	.14	.14	.17	.28	-	-	-	-	-	-	-	-	-	-
CALVES: Well wintered, full fed on grass 168 das.	1.17	1.56	1.88	2.9	.12	.21	.31	.41	.07	.07	.08	.14	.21	.30	.45	.58	.76	.45	.53	.68	.91	1.21
Roughed thru winter, full fed on grass 168 days	.82	1.10	1.32	2.05	.14	.24	.36	.48	.09	.09	.11	.19	.21	.30	.45	.58	.76	.45	.53	.68	.91	1.21
Same except grazed 56 das., full fed 112 das.	.6	.8	.96	1.5	.14	.24	.36	.48	.09	.09	.11	.19	.28	.40	.60	.76	1.0	.60	.70	.90	1.20	1.60
1 work animal	1.4	1.9	3.7	5.2	.7	1.2	1.8	2.4	-	-	-	-	.4	.57	.86	1.08	1.43	.86	1.0	1.28	1.71	2.28
1 colt 1st year	.7	.86	1.04	1.45	.4	.7	1.0	1.3	-	-	-	-	.56	.8	1.2	1.5	2.0	1.2	1.4	1.8	2.4	3.2
1 colt 2nd year	.9	1.1	1.3	1.6	.5	.86	1.3	1.7	-	-	-	-	.7	1.0	1.5	1.9	2.5	1.5	1.75	2.25	3.0	4.0

	Land Classes with Suggested Types of Crop Rotations - Supplied by Department of Soils						
Class	Description	Principal upland Series	Condition of Erosion	Slope 0 to 3%	Slope 3 to 6%	Slope 6 to 10%	Slope 10 to 20%
I	Productive land, all suitable for cultivation. Average corn yields 40 or more bushels per acre	Marshall Grundy Summit	Slight Moderate Severe	C, C, SG, S Cl C, SG, S Cl. SG, Leg., Hay	C, C, SG, S CL C, SG, S CL. SG, Leg., Hay	* C, SG, Leg. S, SG, Leg., Hay SG, Leg., Hay	Topograhy as well as fertility, etc., affects class. No Class I land this steep.
II	Above medium productivity, all suitable for cultivation. Av. corn yields 30 to 40 bushels per acre	Carrington Edina and better grades of Knox, Shelby and Pettis	Slight Moderate Severe	C, SG, Leg. C, SG, Leg. SG, Rot. Past.	C, SG, Leg. C, SG, Leg. SG, Rot. Past.	C, SG, Leg. SG, Hay Rot. Past.	SG, Hay Rot. Past. Perm. Past.
III	Land of medium productivity, practically all tillable. Av. corn yields 20 to 30 bushels per acre	Crawford Decatur Eldon Hagerstown Leslie Memphis Oswego Putnam	Slight Moderate Severe	C, S, SG, Leg. C, S, SG, Leg. SG, Rot. Past.	C, S. SG, Leg. C, SG, Leg. SG, Rot. Past.	SG, Hay Rot. Past. Perm. Past	Perm. Past. Perm. Past. Perm. Past.
IV	Below medium productivity. May or may not be tillable but suitable for pasture. Av. corn yields below 20 bushels per acre	Bates Baxter Cherokee Lindley Tilsit Union Gerald	Slight Moderate Severe	S, SG, Hay S, SG, Hay SG, Rot. Past.	S, SG, Hay SG, Hay Rot. Past.	Perm. Past. Perm. Past. Perm. Past.	Perm. Past. or Forest
V	Mainly forest or rough pasture, because of low fertility, rough surface, erosion, stone content or wet condition	Ashe Boone Clarksville Hanceville Marion Lebanon	Slight Moderate Severe	Perm. Past. or Forest	Perm. Past. or Forest	Forest Forest Forest	Forest Forest Forest

Key to abbreviations: C Corn; SG Small Grain; S CL. Sweet Clover; S Soybeans or Cowpeas; Leg. Legume (mainly Red Clover but may be sweet clover or lespedeza); Rot. Past. Rotation pasture; Hay any meadow or pasture grasses used for hay.

* Except for Marshall, very little land of this slope should be considered in Class I.

MAP OF FARM Plan A

Letter each field. xxx hog fence; /// cattle fence; ---- division but no fence; ~~~ streams; >>> ditches; ▭ bldgs.

Each square may equal 2½ or 10 acres, in which case distance between dots will represent 20 or 40 rods.

MAP OF FARM Plan B

Letter each field. xxx hog fence; /// cattle fence; ---- division but no fence; ~~~ streams; >>> ditches; ▭ bldgs.

Each square may equal 2½ or 10 acres, in which case distance between dots will represent 20 or 40 rods.

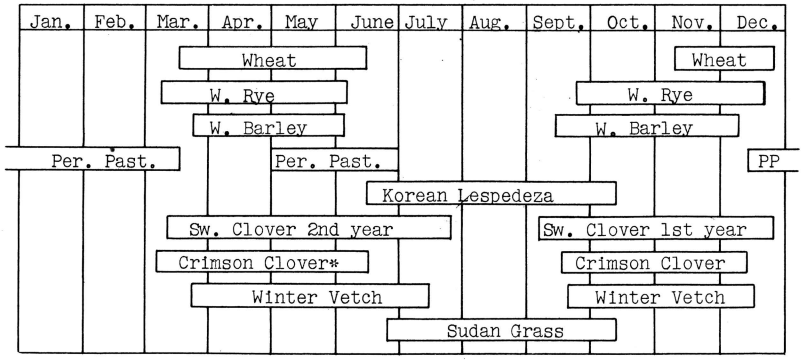
Cropping Plan "A" -- Do not include here land used only for permanent pasture.

Field	Net Crop A	Next Year			Year			Year			Year		
		Crop	A	Prod.	Crop	A	Prod.	Crop	A	Prod.	Crop	A	Prod.
On Hand Amt.	$	Totals											
Feed Grain - Corn Equivalent - -			X		X X	X		X X	X		X X	X	

Cropping Plan "B" -- Do not include here land used only for permanent pasture.														
Field	Net Crop A	Next Year			Year			Year			Year			
		Crop	A	Prod.	Crop	A	Prod.	Crop	A	Prod.	Crop	A	Prod.	
On Hand Amt.	$	Totals												
Feed Grain - Corn Equivalent - -			X		X X	X		X X	X		X X	X		

Field	Kind of Pasture	Acres	Pasture Capacity by Months - Plan "A"											
			J	F	M	A	M	J	J	A	S	O	N	D
Total Units by Months														
			Pasture Capacity by Months - Plan "B"											
Total Units by Months														

Pasture Span for Central Missouri in an Average Season
(Chart supplied by Field Crops Dept.)



*Crimson clover recommended only for southern half of state.

Guide to Seeding and Utilization of Pasture Crops in Missouri (Supplied by Field Crops Dept.)

Pasture Crop or Mixture	Weight per bushel of seed	Amounts to seed per acre	Usual months of seeding (1)	Type of land to which adapted	Preparation and fertilizer recommended	Months in which pasture will be available	Mature cows per acre
Ky. Bluegrass Timothy Red Clover	15# 45# 60#	5# 10# 6#	Sept., Mar. " " Mar., Apr.	Good land where first crop is used for hay	Thorough prep. 200-400# 4-16-4 except on better soils	April, May, June Sept. and Oct. or Dec., Jan., and Feb.	1
Ky. Bluegrass Timothy Orchard Grass Korean Lespedeza	14# 45# 14#	5# 5# 5# 5#	Sept., Mar. " " (2)" " Mar.	Good land; used for pasture only	Same as above	Same as above	1
Orchard Grass Redtop Korean Lespedeza	14# 14#	8# 4# 10#	(2) Sept., Mar. " " Mar.	NE Mo. prairies; better Ozarks; poor land NW Mo.	Thorough seed bed prep. No fertilizer	Late Mar. to Nov. or Dec.	1/2
Redtop Korean Lespedeza	14#	8# 10#	Sept., Mar. Mar.	Poor soils; mainly Ozark uplands	Same as above	May to Nov.	1/3
Sweet Clover	60#	20# hulled 30# unhulled	April Jan., Feb.	Better soils in regular rotation	1 to 3 tons lime on acid soils. 200# phos. on poorer soils	1st yr: Aug. and Sept. 2nd yr: Mar. to July	1 to 3
Crimson Clover	60#	10#	Late Aug. or Sept.	Perry Co. and similar soils of S Mo.	No fertilizer on adapted soils	Mar., Apr., May	
Korean Lespedeza	40 to 50#	15 to 20#	Feb., Mar.	All land too poor for Red Clover	None required	June thru Sept.	1 to 2
Sudan Grass	28#	25#	Late May	Medium to fertile land, tillable	Seed bed as for corn; no fert.	July and Aug.	2 to 3
Orchard Grass	14#	20#	March	Woodland, shaded	No fert. Disked if practicable.	Apr. to Oct.	
Winter Barley	48#	2 bu.	Late Aug. to Oct. 1	Medium to fertile soil	Seed bed as for wheat; 150-200# super phosphate	Oct. and Nov. Apr. and May	1
Wheat	60#	1½ bu.	Sept. 15 to Oct. 15	Medium to fertile soil	Same as above	Nov., Dec., Apr., May to June 15	1/2 in fall 1 in spring
Rye	56#	2 bu.	Late Aug. to Oct. 1	Poorer cultivated soil	No fertilizer	Oct., Nov., Dec., Mar., Apr., May	1/2

(1) When conditions permit, the months of February and August for spring and fall seeding, respectively, will usually give better results than later seedings. (2) Fall seeding only south of Missouri River.

Est. Income - Plan "A"				Feed Req. for Stock Fed for Sale						
To Be Sold	No.	Unit	Total Farm Sales	Produced on Farm				To Be Purchased		
Items	Wt. or Amt.	Price	$	Corn Equiv. bu.	Hay T	Silage T		Kind of Feed	Amt.	Cost
Total Value				Feed Req. for Maintenance Stock						
Kind of Stock	No.	Value								
Total	XX							Total Value of Feed to be Purchased		
Est. Feed Prod. this plan	XX	XXX								
Difference	XX	XXX								

Est. Income - Plan "B"				Feed Req. for Stock Fed for Sale						
To Be Sold				Produced on Farm				To be Purchased		
Items	No. Wt. or Amt.	Unit Price	Total Farm Sales $	Corn Equiv. Bu.	Hay T	Sil-age T		Kind of Feed	Amt.	Cost
Total Value				Feed Req. for Maintenance Stock						
Kind of Stock		No.	Value							
Total		XX						Total value of feed to be purchased		
Est. Feed Produced this plan		XX	XXX							
Difference		X	X							

Estimated Cash Farm Expenses							
Plan "A"				Plan "B"			
Item	Amt.	Price	Cost	Item	Amt.	Price	Cost
Crop				Crop			
Livestock				Livestock			
Bldgs. & Equip.				Bldgs. & Equip.			
Feed bought				Feed bought			
Hired labor				Hired labor			
Taxes or rent				Taxes or rent			
Miscellaneous				Miscellaneous			
1. Total				1. Total			
2. Net Cash: Sales this plan less item 1.				2. Net Cash: Sales this plan less item 1.			

Inventory of Improvements			Inventory of Equipment		
Estimate average value for the year for each item and plan					
Kind of Improvement	Est. Value Plan A	Plan B	Kind of Equipment	Est. Value Plan A	Plan B
Dwelling			Wagons		
Tenant house			Tractor & its Equip.		
Barn			Truck and Car		
Cattle shed			Portable engine		
Hog house			Plows		
Poultry			Disk & other harrows		
Cribs or granaries			Cultivators		
Silo			Roller		
Windmill			Corn binder		
Machine shed			Corn planter		
Fencing			Silo filler		
			Grain binder		
Tiling			Drills & attachments		
Unused limestone			Grinder, shellers, fan mills, etc.		
			Mower		
Total Imp. Inv.			Hay rake		
			Other haying tools		
			Orchard equipment		
			Harness		
Estimated Business Summary			Dairy equipment		
Net depreciation:			Poultry equipment		
On imp. @ ____%			Portable houses		
On equip. @ ____%			Manure spreader		
Total depreciation			Shop tools		
Value unpaid labor					
1. Total Cash Rec.					
2. Total Cash Exp.					
3. Net Cash Rec.					
4. Depr./ unpd. labor					
5. Net Tot. Farm Inc.					
6. Int. & Prin. Pyts.					
7. Net Cash available (Item 3-item 6)			Total		

Combined Farm and Family Living Summary

		Plan A	Plan B
1.	Cash farm sales	1917	3496
2.	Cash farm expenses	576	1165
3.	Net cash farm receipts	1341	2331
4.	Cash family living expenses	467	602
5.	Net cash farm family income	874	1729
6.	Farm contribution to family living (Fuel, food and housing)	558	690
7.	Real net cash equivalent farm family income	1432	2419
8.	Depreciation on farm improvements, equipment and household goods	238	260
9.	Farm family income to cover unpaid labor and interest on investment (Item 7 minus item 8)	1194	2159
10.	Interest and principal payments	____	____
11.	Cash available for savings, etc. (Item 5 minus item 10)	____	____

Combined Farm and Family Living Summary

		Plan A	Plan B
1.	Cash farm sales	____	____
2.	Cash farm expenses	____	____
3.	Net cash farm receipts	____	____
4.	Cash family living expenses	____	____
5.	Net cash farm family income	____	____
6.	Farm contribution to family living (Fuel, food and housing)	____	____
7.	Real net cash equivalent farm family income	____	____
8.	Depreciation on farm improvements, equipment and household goods	____	____
9.	Farm family income to cover unpaid labor and interest on investment (Item 7 minus item 8)	____	____
10.	Interest and principal payments	____	____
11.	Cash available for savings, etc. (Item 5 minus item 10)	____	____

ESTIMATED MONTHLY CASH SUMMARY Farm, or farm and family living						
Plan "A"				Plan "B"		
Month	Receipts	Expenses	Balance	Receipts	Expenses	Balance

Order of Steps in Preparing Farm Plans

1. Draw maps of farm as at present (p. 18) and as to be rearranged (p. 19). Reference—page 2.

2. Record present cropping plans and probable production under average conditions (p. 20), and revised plans (p. 21). The short col. "On Hand," is only to indicate whether present supplies will take care of livestock needs until another crop is harvested. This will also aid in estimating feed purchases. Reference—pages 3 and 4.

3. Estimate pasture carrying capacity of present and revised plans (p. 22) to measure effectiveness in use of land in securing low cost livestock production. Reference—pages 5, 15, 16 and 23.

4. Using conservative prices and production, estimate total income and feed requirements for present and revised plans (pages 24 and 25). Reference—pages 6 and 7. Also pages 10 to 14 for feed requirement data.

5. Estimate cash outlay for present and revised plans (p. 26). Reference—page 8.

6. Record value of improvements and equipment for present plan (and revised plan if any change will be required) (p. 27). Also record brief financial summary to show effect of revised plan on total income. A complete summary showing total capital investment is not provided for, but can be figured by estimating value of land, livestock, feed and supplies. Depreciation as here indicated is limited to buildings and equipment. It is assumed that on the average, once a system is in operation, feed and livestock inventories will not vary. Reference—page 9.

7. Where family living budget is planned, a combined farm and family living summary may be shown (p. 29). Reference—page 28

8. If a monthly cash budget is desired, income items may be calendarized from pages 24 or 25, and expense items from page 26 (p. 30).

GENERAL PROCEDURE IN FARM PLANNING

Determining the number and arrangement of fields to permit cropping systems suited to the farm's natural adaptation, is the first step in planning. Cropping systems will depend on such factors as kind of land, size of farm, available family labor, market opportunities and often many others.

The next step is to adapt to the cropping system, a means of utilizing the product of the land. For most Missouri farms this re-

quires choice of proper livestock enterprises and use of methods suited to the individual conditions. New problems of Missouri farmers demand, in many instances, changes in both the kind of livestock carried and in production practices.

It is necessary to estimate the amount of crop and pasture production as well as the feed and pasture requirements for the different kinds of livestock, in order to determine the carrying capacity and income which can be expected. It is then only a matter of applying estimated prices and costs to the amounts of items to be sold and bought.

This circular illustrates a farm replanned in this manner followed by identical blank forms in which individual farm plans may be recorded. Considerations determining what the system should be are not discussed in the illustration shown since the principal purpose is to indicate a method.

USE OF FARM PLANS FOR CREDIT PURPOSES

Planning the farm business has additional value in guiding wise use of credit. If farm mortgage credit is being considered, the prospective borrower can protect his own interest in no better way than to carefully measure the net income which he can reasonably expect to secure from the farm, including with the other expenses, taxes, insurance on improvements and upkeep. Such a net income figure should be based on average yields, average management and conservative prices.

From the figure thus secured must be deducted the necessary amount for family living plus any investments desired aside from the farm itself. This will give the probable income available for annual payments to retire the loan within the period for which it is made.

Farm plans are equally valuable in determining the desirability of securing either intermediate or short time credit for production purposes. Such plans will enable one to figure whether the loan will result in greater net earnings from the farm business. This is the test as to whether a production loan should be obtained.

The monthly cash budget form on page 30 may be used to estimate the time within the year when proceeds from short time credit may be needed, as well as the months during which repayment may be made most conveniently.

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