UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION
BULLETIN 297

INFLUENCE OF YIELD ON COSTS AND INCOME IN AGRICULTURAL PRODUCTION

COLUMBIA, MISSOURI
MARCH, 1931

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE

Agricultural Experiment Station

STATION STAFF, MARCH, 1931

WALTER WILLIAMS, LL.D., President

F. B. MUMFORD, M.S., D. Agr., Director S. B. SHIRKY, A.M., Asst. to Director.

MISS ELLA PAHMEIER, Secretary

AGRICULTURAL CHEMISTRY
A. G. HOGAN, Ph.D.
L. D. HAIGH, Ph.D.
W. S. RITCHIE, Ph.D.
E. W. COWAN, A. M.
L. V. TAYLOR, A.B.
A. R. HALL, B.S. in Agr.
ROBERT BOUCHER, JR., A.M.
LUTHER W. RICHARDSON, A.M.
U. S. ASHWORTH, A.B.

AGRICULTURAL ECONOMICS
O. R. JOHNSON, A.M.
BEN H. FRAME, A.M.
F. L. THOMSEN, Ph.D.
C. H. HAMMAR, Ph.D.
PRESTON RICHARDS, A.M.

AGRICULTURAL ENGINEERING
J. C. WOOLEY, M.S.
MACK M. JONES, M.S.
R. R. PARKS, B.S. in Agr. Eng.
D. D. SMITH, B.S. in A.E.

ANIMAL HUSBANDRY
E. A. TROWBRIDGE, B.S. in Agr.
L. A. WEAVER, B.S. in Agr.
A. G. HOGAN, Ph.D.
F. B. MUMFORD, M.S., D. Agr.
D. W. CHITTENDEN, A.M.
F. F. MCKENZIE, Ph.D.*
J. E. COMFORT, A.M.
H. C. MOFFETT, A.M.
RAYMOND S. GLASSCOCK, A.M.
RALPH W. PHILLIPS, A.B.

BOTANY AND PHYSIOLOGY
I. T. SCOTT, Ph.D.

DAIRY HUSBANDRY
A. C. RAGSDALE, M.S.
WM. H. E. REID, A.M.
SAMUEL BRODY, Ph.D.
C. W. TURNER, Ph.D.
WARREN GIFFORD, A.M.
E. R. GARRISON, A. M.
M. E. POWELL, B.S. in Agr.
H. A. HERMAN, B.S. in Agr.
A. H. FRANK, A.M.
C. L. FLESHMAN, B.S.

ENTOMOLOGY
LEONARD HASEMAN, Ph.D.
T. E. BIRKETT, B.S. in Ed.
PAUL H. JOHNSON, A.M.

FIELD CROPS
W. C. ETHERIDGE, Ph.D.
C. A. HELM, A.M.
L. J. STADLER, Ph.D.*
R. T. KIRKPATRICK, A.M.†
W. R. TASCHER, Ph.D.
B. M. KING, A.M.
S. F. GOODSELL, A.M.
E. MARION BROWN, A.M.
MISS CLARA FUHR, M.S.*

HOME ECONOMICS
MABEL CAMPBELL, A.M.
MARGARET C. HESSLER, Ph.D.
JESSIE ALICE CLINE, A.M.
ADELLA EPPEL, M.S.
SYLVIA COVER, A.M.

HORTICULTURE
T. J. TALBERT, A.M.
A. E. MURNEEK, Ph.D
H. G. SWARTWOUT, A.M.
J. T. QUINN, A.M.
ARTHUR MEYER, A.M.
GEO. CAR VINSON, Ph.D.

POULTRY HUSBANDRY
H. L. KEMPSTER, M.S.
E. M. FUNK, A.M.

RURAL SOCIOLOGY
E. L. MORGAN, A.M.
WALTER BURR, A.M.
HOWARD E. JENSEN, Ph.D.
HENRY J. BURT, A.M.
MISS ADA NIEDERMEYER, A.B.

SOILS
M. F. MILLER, M.S.A.
H. H. KRUSEKOPF, A.M.
W. A. ALBRECHT, Ph.D.†
HANS JENNY, Ph.D.
LLOYD TURK, A.M.
HAROLD F. RHODES, B.S. in Agr.
JAS. F. LUTZ, B.S. in Agr.
WILBUR BRYANT, B.S.
E. E. SMITH, B.S.

VETERINARY SCIENCE
J. W. CONNAWAY, D.V.M., M.D.
O. S. CRISLER, D.V.M.
A. J. DURANT, A.M., D.V.M.
ANDREW UREN, D.V.M.
ELLMORE F. SANDERS, D.V.M.
HAROLD C. MCDOUGLE, A.M.

OTHER OFFICERS
R. B. PRICE, B.L., TREASURER
LESLIE COWAN, B.S., Sec'y of University
A. A. JEFFREY, A.B., Agricultural Editor
L. R. GRINSTEAD, B.J., Assistant Editor
J. F. BARHAM, Photographer
JANE FRODSHAM, Librarian

*Inservice of U. S. Department of Agriculture

†On leave of absence

Influence of Yield on Costs and Income in Agricultural Production

BEN H. FRAME

Prices of many farm products at the present time are lower than they have been for many years. Apparently there is a larger supply of these than the consuming public is willing or able to buy at prices which are remunerative to many of the growers. At the same time that the prices of farm products are so low, millions of people in our cities and in foreign countries are hungry. In view of such conditions many farmers are wondering how best to meet the situation.

The writer is of the opinion that colleges of agriculture and extension agents, by making knowledge of more efficient practices of production and marketing available to all, are offering the best solution of the farmers' problems. This is written with a full realization that frequently the group interests do not coincide with the interests of the individuals. If improved methods in agriculture increase total production, prices tend to be depressed. It is a well-known principle of economics that in a competitive industry economies of production are passed along to the consumer, insofar as such economies are generally distributed among the producers. Frequently the condition of producers as a group is no better than before the improved practices were introduced; but neither should it be worse, because in the long run the decrease in price must be counterbalanced by the decrease in the cost of production. However, the condition of those who adopted the better practice is improved. It is only just that the more efficient should be rewarded.

Furthermore, it is also recognized that the lower the price of the product, the lower is the intensive margin of production; that is, the application of the fertilizer or labor necessary to produce the last unit of product, which may have been profitable when prices of the product were high, would probably not prove profitable with any fall in the price of the product. This is especially true during periods of falling prices because of the interval of time which necessarily elapses between the incurring of the expense and the completion of the process of production. This is a point closely associated with the law of diminishing returns.

The Influence of Increasing Yield on Expenses and Net Income

The law of diminishing returns in agriculture has frequently been emphasized but it should be pointed out that the law of diminishing returns operates only after a certain point has been reached. Up to

that point there is a law of increasing returns which operates just as inexorably as the law of diminishing returns operates after that point. The writer believes there is ample evidence to show that on many Missouri farms the point of diminishing returns has not yet been reached. If this is true, the surest and quickest way for these individual farmers to increase their efficiency of production and improve their financial status is to increase their yield per acre and per animal. On the majority of Missouri farms the point of diminishing returns has probably been reached, but this does not necessarily mean that those farmers should not strive to increase their yields. Only where they have a good opportunity to extend the area of their operations—that is, to spread their total labor and capital over more acres or animals—should they be content with their present yields. There are many farms where a good opportunity to do this does not exist except on inferior soils which frequently do not return the cost of production under the best of conditions. Under any circumstances the problem of the operator is to secure the greatest total net returns for his supply of labor and capital. Where the area is limited, this frequently involves increasing the total output even though the returns per unit of input are less than for a somewhat lower yield per acre.

TABLE 1.—OPERATION OF THE LAW OF DIMINISHING RETURNS WITH A FIXED AMOUNT OF LABOR AND CAPITAL AVAILABLE, AND WITH A VARIABLE AREA

Acres	Units of capital and labor	Units of capital and labor per acre	Yield per acre in bushels	Total yield in bushels	Returns in bushels per unit of capital and labor
20	400	20	50	1000	2.500
30	400	13⅓	45	1350	3.375
40	400	10	40	1600	4.000
50	400	8	35	1750	4.375
60	400	6⅔	30	1800	4.500
70	400	5 5-7	25	1750	4.375
80	400	5	20	1600	4.000
90	400	4 4-9	15	1350	3.375
100	400	4	10	1000	2.500

Tables 1 and 2 illustrate how the law of diminishing returns operates and its connection with total returns when the area available is variable and also when it is fixed. It has been assumed that the operator has a certain supply (400 units) of labor and capital which is a fixed charge regardless of how he uses it. In Table 1 he has the opportunity of using this fixed supply of labor and capital on as many acres as he desires, but in Table 2 the area available is limited to 40 acres. It will be noticed that in Table 1, where the area is not fixed, the point of the most efficient use of capital and labor coincides with the point of greatest total returns.

This is accomplished on 60 acres, where the yield is 4.5 bushels per unit of input of capital and labor and the total returns are 1800 bushels. For both 50 acres and 70 acres the yield per unit of input is only 4.375 bushels and the total returns are 1750 bushels.

In Table 2, however, where the area is fixed, the point of the most efficient utilization of labor and capital does not coincide with the point of greatest total returns. By applying 266⅔ units of labor and capital to 40 acres the yield per unit of input was 4.5 bushels. Increasing the input of labor and capital to 400 units reduced the yield per unit of input to 4.0 bushels but increased the total yield from 1200 to 1600 bushels.

TABLE 2.—OPERATION OF THE LAW OF DIMINISHING RETURNS WITH A FIXED AMOUNT OF CAPITAL AND LABOR AVAILABLE AND WITH A FIXED AREA

Acres	Units of capital and labor per acre	Total units of capital and labor used	Yield per acre in bushels	Total yield in bushels	Returns in bushels per unit of capital and labor
40	5	200	20	800	4.000
40	5 5-7	228 4-7	25	1000	4.375
40	6⅔	266⅔	30	1200	4.500
40	8	320	35	1400	4.375
40	10	400	40	1600	4.000

There is no doubt that there are many Missouri farmers whose circumstances are such as illustrated in Table 2 and who could profitably increase their crop yields past the point of diminishing returns. It might be objected that in Table 1 the increase from 50 to 60 acres might cost more than the 50 bushels additional yield would bring. This will depend on the cost of land and the price of the product. On poor land the increased yield will frequently not pay rent on the additional land. Also in Table 2 the advisability of hiring more labor and capital to increase the yield on the 40 acres will depend on the cost of these factors of production and the income from the additional yield. Suppose the input of labor and capital were increased to 13⅓ units per acre, the next step in the table would show:

Acres	Units of capital and labor per acre	Total units of capital and labor used	Yield per acre in bushels	Total yield in bushels	Returns in bushels per unit of capital and labor
40	13⅓	533⅓	45	1800	3.375

If the 133⅓ additional units of labor and capital did not cost as much or more than the additional yield of 200 bushels would bring, such an intensification of production would be profitable.

The writer believes that perhaps the surest and quickest way for most Missouri farmers to better their financial condition is through their own efforts in reducing their costs of production by increasing their yields per acre and per animal. Cost of production data may be misleading in that sometimes a high production cost may be accompanied by a larger total yield so that the net returns are higher than given by a lower production cost with less total yields, as illustrated by the following figures:

Acres of corn	Yield per acre	Total yield	Cost per bushel	Price	Total profit
60	30	1800	50c	80c	$540.00
30	45	1350	45	80	472.50

If the additional 30 acres could not be more profitably used in some other way, it would pay to put it in corn even though the 30 acres only produced $67.50 additional revenue. However, we may be sure that with other things being equal, the lower the production cost, the higher the net profit. One should also recognize that in being guided by cost of production data, fixed costs should not be considered. Only when those expenses caused by the increased yield are as great or greater than the additional income is it unprofitable to increase the yield.

Cost of production data collected and tabulated by our colleges of agriculture, show conclusively that increasing the per acre or per animal production generally decreases the cost of production per unit of output. Tables 3, 4, and 5 show the results of the cost accounting records secured by the Department of Agricultural Economics at the Missouri College of Agriculture on corn, wheat and oats from 1923 to and including 1929. The results are remarkably uniform in showing a decreased cost with increased yield.

Table 6 shows practically the same thing in the production of cotton in Oklahoma. The additional fact should be noted that the average labor income increased as the cost of production decreased. That this increased labor income per operator was not due to larger acreage of cotton is very evident since exclusive of the first class (in which there is only one farm and therefore not significant) there was practically no increase in the acreage of cotton per operator. The increased labor income must have been due either to other enterprises or to the cheaper production cost which in turn was caused largely by the greater yield per acre. Of the two possibilities, the cheaper production cost is the more probable since other enterprises would tend to offset each other in the number of farms included in this study.

TABLE 3.—COST OF PRODUCING CORN, 1923-1929, ON THE COST ACCOUNTING COOPERATING FARMS IN MISSOURI
(Grouped according to yield per acre)

Yield in bushels	Fields	Average yield per acre	Average cost* per bushel	Cumulative reduction in cost
2.5—17.49	27	12.24	$1.06	
17.5—32.49	45	24.48	.71	33.0%
32.5—47.49	76	38.95	.51	51.9
47.5—62.49	56	53.14	.45	57.5
62.5—77.49	10	70.01	.34	67.9

TABLE 4.—COST OF PRODUCING WHEAT, 1923-1929, ON THE COST ACCOUNTING COOPERATING FARMS IN MISSOURI
(Grouped according to yield per acre)

Yield in bushels	Fields	Average yield per acre	Average cost* per bushel	Cumulative reduction in cost
2.5— 7.49	11	6.26	$2.04	
7.5—12.49	20	9.43	1.47	27.9%
12.5—17.49	32	15.00	1.10	46.1
17.5—22.49	22	19.90	1.05	48.5
22.5—27.49	10	24.17	.95	53.4
27.5—32.49	1	30.00	.96	52.9

TABLE 5.—COST OF PRODUCING OATS, 1923-1929, ON THE COST ACCOUNTING COOPERATING FARMS IN MISSOURI
(Grouped according to yield per acre)

Yield in bushels	Fields	Average yield per acre	Average cost* per bushel	Cumulative reduction in cost
0.1—12.5	5	7.81	$0.97	
12.6—25.0	17	18.76	.58	40.0%
25.1—37.5	5	28.85	.49	49.5
37.6—50.0	4	41.73	.46	52.6

*The costs in Tables 3, 4, and 5 include all direct cash expenses and also man and horse labor, tractor, equipment, seed, manure, rent, and a proportional part of the general overhead expense on the farm.

TABLE 6.—COST OF PRODUCING COTTON*
102 Tillman County Oklahoma Farms, 1929
(Farms grouped according to yield per acre)

Number of farms	Yield per acre, bales	Acres of cotton per farm	Average labor income	Cost of cotton per lb.
1	.1	30	$—1,543	$1.22
5	.2	160	— 450	.21
16	.3	158	— 353	.18
25	.4	163	143	.15
21	.5	139	1,044	.13
16	.6	183	2,213	.11
7	.7	142	2,376	.10
11	.8	135	2,926	.10
6	.9	192	5,864	.08

*Included in a paper presented by P. H. Stephens of the Oklahoma A. and M. College before the National meeting of the American Farm Economics Association at Cleveland, 1930.

A table given in a New York Experiment Station publication† shows in an indirect way the influence of yield per acre on the costs and profits of producing potatoes. The data are grouped by cost of fertilizer per acre, Table 7, but columns 3, 5 and 6 show that there was an average increase in the yield per acre and that the cost per bushel decreased while the profit per acre increased.

TABLE 7.—PRODUCTION RELATED TO COST AND PROFITS OF POTATOES†
108 Steuben County, N. Y., farms in 1912

Cost of fertilizer per acre	Average cost of fertilizer per acre	Average yield per acre	Average cost		Average profit per acre
			Per acre	Per bushel	
None used		114 bu.	$48	43c	$0.58
$ .01—$4	$ 2.08	121	51	42	3.23
4.01— 8	5.30	145	59	41	6.92
Over $8	10.41	158	65	41	6.95

†New York (Cornell) Agricultural Experiment Station Memoir 22, pg. 587.

The preceding examples have all been on individual crops but there is ample evidence to show that as the general plane of crop yields is raised the influence on income is favorable. In order to show the effect of all crop yields on income it is necessary to construct some sort of an abstract measure, since yields of individual crops are reported in pounds, bushels, tons, etc. Such a measure is called a crop index and is computed by dividing the number of acres in crops on the particular farm or farms by the number of acres it would require to produce the same quantity with average district yields and multiplying by 100. If the average crop yields on the farm or group of farms is less than the district averages, the crop index is less than 100. Thus the size of the crop index represents the per cent that the average yields on the farms being studied is of the average yields of the district.

Table 8 shows the result of a farm management survey taken in Johnson County, Missouri in 1912. The operators are divided into

TABLE 8.—RELATION OF CROP YIELDS TO LABOR INCOMES*
669 records in Johnson County, Missouri in 1912

Crop Index	Labor Incomes		
	272 Owners	218 Part Owners	179 Tenants
60 or less	$46	$−26	105
61— 75	−21	51	128
76— 90	72	442	473
91—110	376	448	601
111—130	554	1040	857
Over 130	678	920	908

*Missouri Agricultural Experiment Station Bulletin 121 pg. 106.

three groups but the labor income of each group increases very rapidly as the crop yields, as indicated by the crop index, increase.

Tables 9 and 10 show the relation of crop yields to labor incomes in New York and Nebraska respectively. Many more examples could be given all showing the same general tendency. There can be no doubt that increasing the per acre yields offers to the individual farmer one of the surest ways of bettering his economic condition, especially if his yields are below average.

TABLE 9.—RELATION OF CROP YIELDS TO LABOR INCOMES*
670 Jefferson County, N. Y. farms in 1910

Crop Index	Number of farms	Average crop index	Average labor income
75 or less	94	65	$306
76— 85	85	81	526
86— 95	95	91	618
96—105	103	101	650
106—115	87	111	662
116—125	67	120	693
Over 125	139	143	755

*New York (Cornell) Agricultural Experiment Station Bulletin 349, pg. 681.

The same general tendency is shown by practically all cost accounting and survey records on livestock. A number of typical studies on dairy cows and poultry were selected from many studies which were

TABLE 10.—RELATION OF CROP YIELDS TO LABOR INCOMES*
195 Eastern Nebraska farms in 1916

Crop Index	Number of farms	Average crop index	Average labor income
85 or less	43	71	$120
86— 95	32	92	225
96—105	49	100	417
106—115	27	110	450
Over 115	44	129	675

*Nebraska Agricultural Experiment Station Bulletin 157, pg. 18.

TABLE 11.—RELATION OF PRODUCTION PER COW TO LABOR INCOMES*
585 Jefferson County, N. Y. farms in 1910

Receipts per cow	Number of farms	Average receipts per cow	Average labor income
$30 or less	45	$22	$241
31— 50	178	42	394
51— 75	221	63	764
76—100	111	88	909
Over 100	30	119	1307

*New York (Cornell) Agricultural Experiment Station Bulletin 349, pg. 685.

available. Table 11 shows the results from a study on 585 farms in Jefferson County, New York, in 1910. These farms all had six or more cows. The production per cow was given only indirectly—receipts per cow. However, since all the records were for the same year, receipts per cow are a fair indication of production per cow.

Table 12 summarizes the results in Greene County, Ohio for the years 1920-1924, as published in the Ohio Agricultural Experiment Station Bulletin 419. This study included 75 herds of dairy cattle which were divided into three groups on the basis of average butterfat production per cow. An increase of 86 per cent production, between the lowest and highest producing groups, was accompanied by a decrease of 41 per cent in the cost of production per pound.

TABLE 12.—RELATION OF PRODUCTION PER COW TO THE HERD COST OF PRODUCING BUTTERFAT**
(1920-1924)

Item	With annual butterfat production per cow of:		
	Less than 185 pounds	From 185 to 215 pounds	215 pounds or more
Number of herds	26	22	27
Average butterfat production per cow	135 lbs.	197 lbs.	251 lbs.
Cost per pound of butterfat	83c	64c	49c

*Ohio Agricultural Experiment Station Bulletin 419, pg. 31.

Table 13 shows a similar tendency in Illinois for the production of whole milk per 100 pounds, as reported in "A Year's Progress in Solving Farm Problems in Illinois, 1927-1928". The analysis here is carried a step further and the net profit per cow and rate of earnings on the entire farm investment both show decreases as production per cow decreases. Of course the rate of earnings on the entire farm investment is due only partially to the efficiency of dairy cattle production.

TABLE 13.—RELATION OF PRODUCTION PER COW TO MILK COST AND FARM INCOME IN ILLINOIS IN 1926*
(9 herds in each group)

Group	Average production of milk	Average No. cows per farm	Average cost per 100 lbs. of milk	Average net profit per cow	Average earned on total farm investment
1	9743 lbs.	22	$1.81	$83.40	8.44%
2	8003 lbs.	19	2.09	54.22	5.82
3	7227 lbs.	20	2.32	51.41	4.65
4	6303 lbs.	18	2.30	42.57	3.97

*"A Year's Progress in Solving Farm Problems in Illinois, 1927-1928," pg. 218.

Turning now to the poultry enterprise we find the same conditions existing. Table 14 shows the summary of the results obtained from a

year's records in New Jersey. It is evident that there were two factors influential in causing these greatly increased labor incomes. It is generally conceded that the larger the size of the business, the larger the average labor income is likely to be. The average size of the flocks in the highest income group was approximately 300 hens larger than in the lowest income group, the increase having been fairly constant from the low to the high income group. However, it is not conceivable that the addition of 300 hens would raise the income by approximately $2000. A considerable portion of the increase in labor income must be due to the higher egg production per hen.

TABLE 14.—RELATION OF EGG PRODUCTION PER HEN TO LABOR INCOME ON 150 POULTRY FARMS IN NEW JERSEY IN 1915-'16*

Eggs per hen	Number of farms	Hens per farm	Average eggs per hen	Average labor income
60 or less	9	505	46	$−176
61— 80	13	573	68	−67
81—100	22	650	91	312
101—120	53	785	108	775
121—140	27	717	126	1,173
141 and over	16	808	155	1,823

*New Jersey Agricultural Experiment Station Bulletin 329, pg. 46.

Table 15 shows a report of the Ohio Agricultural Experiment Station on the cost of producing eggs and the returns per unit input. The average production of 56 eggs per hen in Group I corresponds approximately to the production of the average Missouri hen. Yet there are flocks in the state that average 180 eggs to the hen, and 120 eggs per hen is not at all too high a mark at which every poultry raiser in the state might hopefully aim. It is very doubtful if the average Missouri hen returns any profit to her owner although there is no reason why they should not make a profit of a dollar per bird.

TABLE 15.—RELATION OF RETURNS ABOVE FEED COSTS PER 100 CHICKENS TO OTHER FACTORS—BY GROUPS OF FARMS 1920-1926*

Item	Annual returns above feed cost per 100 chickens		
	Group I under $75	Group II $75 to $125	Group III $125 and over
Number of farms	8	7	7
Average hens per flock	74	103	116
Average eggs per hen	56	93	107
Cost of eggs per dozen	38.1c	30.4c	26.8c
Average returns over feed cost per 100 hens	$41.95	$105.88	$107.33
Average return per $1.00 fed	$1.40	$1.89	$2.40

*Ohio Agricultural Experiment Station Bulletin 424, pg. 39.

The examples given have all been from the standpoint of what the *individual* farmer might expect by increasing his production per acre or per animal. It is true that part of the present surplus going to the markets has resulted from individual farmers acting on such knowledge. Such action probably does not benefit the group if we regard the group as being composed of all persons producing a certain commodity. Perhaps nothing will benefit the group except group action, either through legislation or cooperation. This, however, is entirely beyond the power of the individual to compass.

Moreover, it must be noted, many of our staple commodities are world commodities. The group is composed of farmers of every nationality. Clearly group action is impossible in such cases. The American producers practically supply the world with only a few products. Cooperative effort in controlling production might in time succeed with such commodities. Controlled production, however, should in no case involve a conscious effort to decrease, or a failure to use every possible means to increase, the efficiency of production but rather should be affected by a reduction in acreage, the surplus area being used in less intensive crops. Moreover, the surplus area should be the poorest land.

If we define the group in which we are interested as including only our own farmers, then individual action to increase efficiency of production is beneficial to the group producing any commodity. In this case we may regard the competition as being between groups rather than between individuals. Any improvement in technique which gives an advantage to the American group improves their economic position relative to their foreign competitors. This is true regardless of whether we are on an export or an import basis, and if on a permanent import basis regardless of an import duty. The only exception is when the improved technique makes the production of a protected commodity so profitable that we change from an import to an export position.

Let it again be emphasized that group action with a view to group benefit requires organization which has not yet been very successful among the producers of our more important commodities, except perhaps in the field of marketing. Until such organization is perfected, farming is a competitive industry and each individual must use all the knowledge and skill in his possession or suffer economic effacement.