

1.9  
62672  
ESC

4

# AGRICULTURAL EXTENSION WORK

LIBRARY OF THE  
OFFICE OF EXPERIMENT STATIONS

## IN THE 11 WESTERN STATES

AUG 11 1926

1925

EXPERIMENT STATION FILE

~~FILE~~

Eugene Merritt



UNITED STATES DEPARTMENT OF AGRICULTURE  
Extension Service.....C.W. WARBURTON *Director*  
Office of Cooperative Extension Work.....C.B. SMITH *Chief*  
Washington, D. C.

Extension work

Notes

1-11

AGRICULTURAL EXTENSION WORK IN THE 11 WESTERN STATES, 1925

Eugene Merritt,  
 Field Agent, Western States,  
 Office of Cooperative Extension Work

Contents

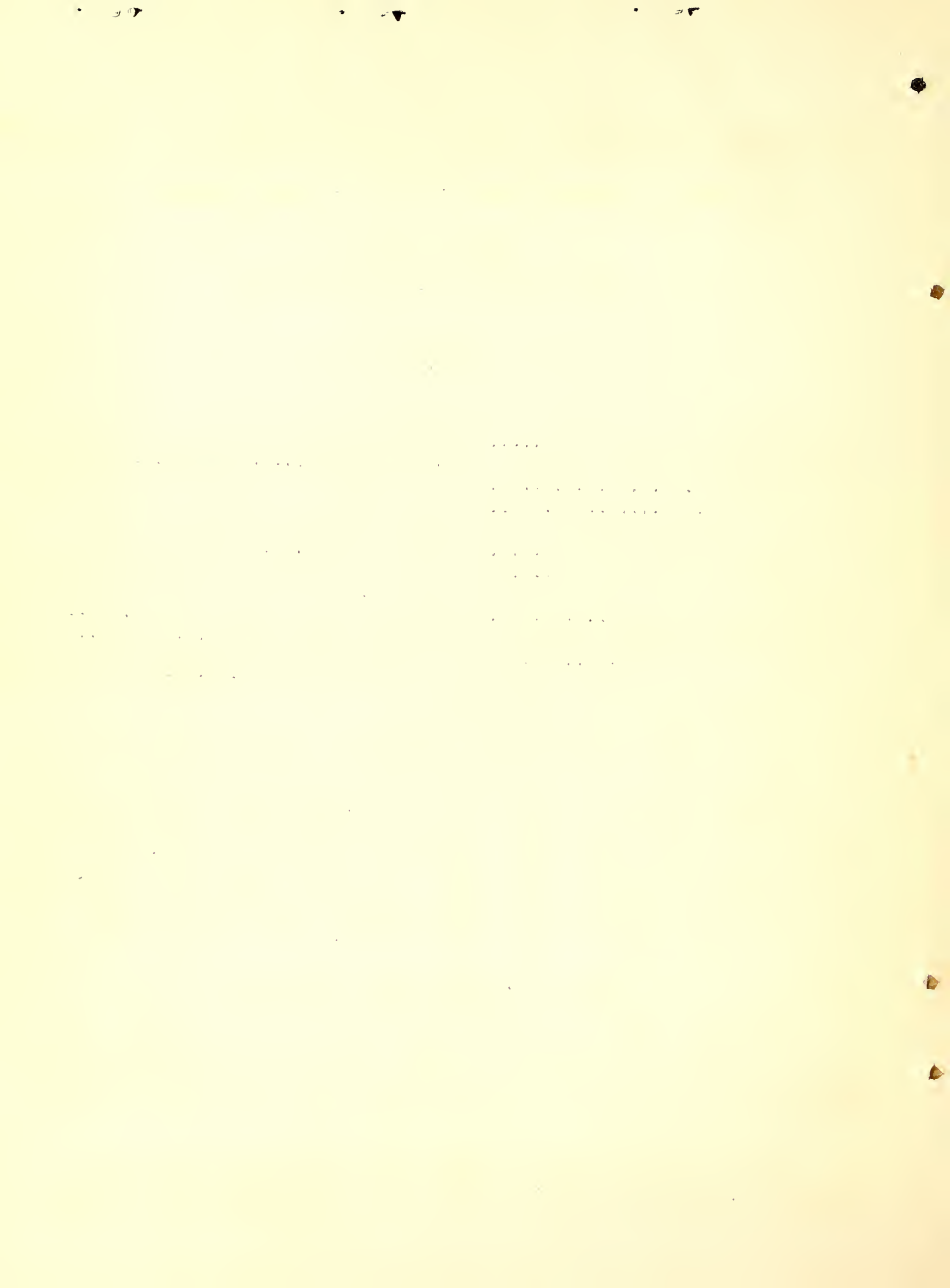
Page	Page
Type of program analysis needed..... 1	Similar standards applied to dairy industry..... 7
By what standards should extension work be judged..... 2	Influence of numbers of farmers per counties on extension program..... 9
Gross returns..... 2	What determines present extension programs..... 10
Expenditure for subject-matter specialists as an indicator..... 4	Why tuberculosis work succeeds..... 10
Number of farmers as a measure..... 5	Why vaccination for blackleg succeeds..... 10
Relative importance of enterprise in States as a standard..... 6	Why dairy rations succeed..... 12
Relative number of farmers having poultry as a standard..... 7	Comparisons..... 12
	Subdivisions of labor..... 12
	Conclusion..... 14

The central theme of this report is: Some of the Standards or Factors to Use in Determining Whether the Extension Program has the Proper Emphasis. A good deal of thought has been given to the study of what succeeds in extension work, but back of this should be a more thorough study of what the real objective is of the agricultural program upon which our extension program is based. The principles behind the present success with certain farm practices should be applied in improving other farm practices, which are of more importance in the development of agriculture than those to which we are giving the greater part of our effort.

Type of Program Analysis Needed

We need: (1) A complete inventory of the objectives of present extension programs (decisions involved), (2) information as to how these objectives are being reached through extension activities (methods), and (3) facts on what has been accomplished (results).

For example, a complete list of the important problems (decisions) the farmer has to solve should be made, their relative importance determined, and the present extension program checked



against this list. This report is not made with the idea of determining relative merit of the present extension program, but to present several standards that may be used in studying what we are now doing in extension work.

This study raises the question as to whether our extension program should continue to lay stress on certain specific practices that it has been emphasizing for the past 10 to 15 years, or whether it should set in motion an economic machine to perform that function for the farmer, such as an organization for the production of purebred sires, an organization for producers of certified seed, or an organization for professional cullers of poultry. Should the farmers continually be organized to create a demand for high-producing purebred bulls and cows, in order to stimulate purchases, or should purebred associations be organized and financed to do this stimulating? If we are to continue forever on our present plan of extension work, when shall we be in a position to help farmers with more fundamental problems?

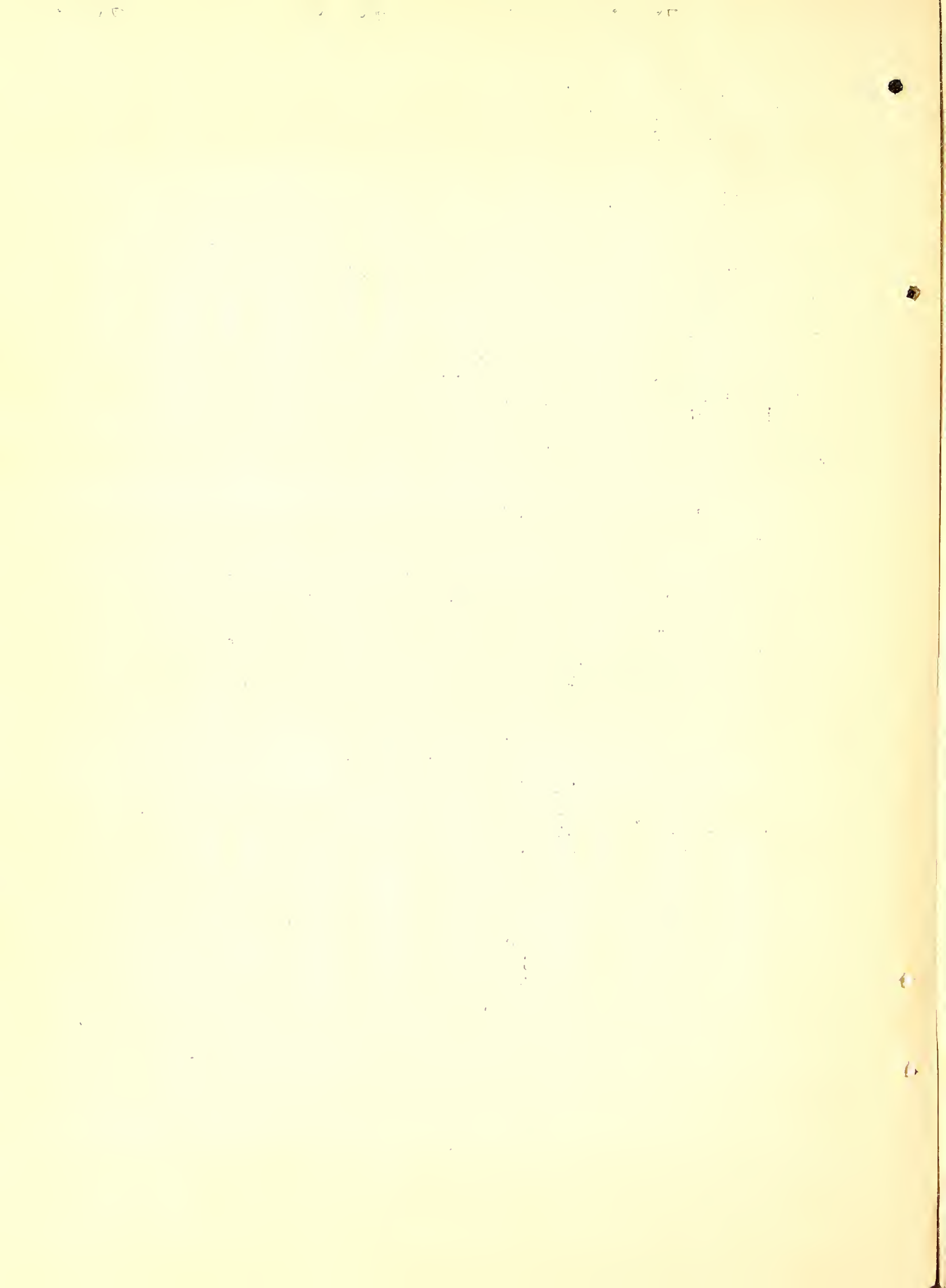
#### By What Standards Should Extension Work be Judged

When the objective in extension work is considered the question arises as to whether an improved practice will ever become a habit, or when is it economical to cease further demonstration work with reference to a practice. In other words, what standards are we going to set up as indicative that sufficient progress through extension work has been made and a new practice should be attacked, and what emphasis should be given to a particular enterprise and to a particular practice within an enterprise?

#### Gross Returns

One measure of the trend of our extension program is the relationship of effort put forth to the value of the enterprise involved. In the 11 Western States about 35 per cent of the gross income is from the enterprises that are usually within the scope of the agronomy project; 25 per cent within the scope of the horticultural project; 25 per cent, animal husbandry; 10 per cent, dairying; 4 per cent, poultry; and 1 per cent, products of wood lot or forest. In the different States the range for agronomy enterprises is from 20 to 50 per cent; horticultural enterprises, 4 to 40 per cent; animal husbandry enterprises, 10 to 70 per cent; dairy enterprises, 3 to 12 per cent; or, in the aggregate, animal husbandry and horticulture are two and one-half times as important as a source of income as dairying and more than six times as important as poultry. Agronomy, on the other hand, is 40 per cent more important than horticulture or animal husbandry.

It is interesting to compare some of these figures as indicative of extension effort. In order that figures may not be biased because of the peculiarities of a single year, the three



years, 1923, 1924, and 1925, have been used as a base. During these years county agents devoted between 5,500 and 6,500 days to poultry extension work, between 5,300 and 6,600 days to animal husbandry work, and from 6,400 to 7,400 days to horticulture. When they are considered as a source of income, horticulture and animal husbandry are six times as important as poultry. The relative extension emphasis raises the question as to whether this is sound from an economical point of view. When it is also considered that agronomy, horticulture, and animal husbandry are two and one-half times as large economically as dairying, that the number of days devoted to the animal husbandry, horticultural, and agronomy projects is less than two times as large as dairying, and that more effort is given dairying than animal husbandry, again the question arises as to whether the proper effort from an economic standpoint is being given to the animal husbandry project.

Table 1.- Extension Results, 11 Western States, 1923 to 1925 Inclusive

Item	Income Per. Cent.	Days spent by county extension agent		
		1923	1924	1925
Poultry.....	4	5,549	6,332	6,422
Dairying.....	10	7,089	8,300	7,421
Agronomy.....	25	11,927	12,437	13,300
Animal Husbandry...	35	6,634	6,425	5,310
Horticulture..	25	7,282	6,365	7,401

Item	Demonstrations completed			Farmers adopting practices		
	1923	1924	1925	1923	1924	1925
Poultry.....	1,295	1,553	1,298	19,346	15,001	11,898
Dairying.....	1,314	1,774	1,042	41,595	31,830	31,459
Agronomy.....	8,514	9,751	9,248	70,610	42,060	40,414
Animal Husbandry...	2,170	2,519	1,673	55,524	41,074	40,516
Horticulture..	3,894	2,354	3,654	43,795	17,950	18,632

1910

1910

1910

1910

1910

1910

1910



With the animal husbandry project enterprises as a basis, similar comparisons can be made in connection with the other projects. The number of demonstrations ranges from 1,600 to 2,500 for animal husbandry. Agronomy, which is 40 per cent more insignificant economically, has three to four times as many demonstrations. Poultry, which is less than half as significant, has more than half as many additional demonstrations. Horticulture, which is equally significant, has from 50 to 100 per cent more.

In a similar way we can compare the results as indicated for the number of farmers adopting improved practices. Extension work with dairying and poultry apparently leads to a much larger group of farmers changing practices than economical relationship would seem to warrant. The number of improved practices adopted for dairying ranges from 30,000 to 40,000; for agronomy, 40,000 to 70,000; animal husbandry, 40,000 to 55,000; horticulture, 18,000 to 44,000. If the economic ratio were maintained, agronomy should have 100,000 to 140,000; animal husbandry and horticulture 75,000 to 100,000. If poultry were used as a base the contrast would be even greater.

#### Expenditure for Subject-Matter Specialists as an Indicator

Since the Smith-Lever Act was passed more than \$1,700,000 has been spent for the five subject-matter projects mentioned above, the smallest amount being for horticulture. The others in order of importance were poultry, animal husbandry, agronomy, and dairying. If this money had been spent on the basis of the relative economic importance, the divisions would have been as follows: \$475,000 for animal husbandry and horticulture, \$600,000 for agronomy, \$175,000 for dairying, and \$75,000 for poultry. If we use the last two years as indicative of the emphasis being given to the extension program, poultry is getting nearly five times what would be allotted to it on the economic basis; horticulture, one-half; whereas, the amounts for animal husbandry and agronomy would have to be increased. The number of subject-matter specialists and the funds at their disposal have a marked tendency to cause certain projects to be emphasized. In many projects the peculiar interest of the individual specialist determines what phase is to be emphasized.



Table 2.- Expenditures, 11 Western States

Year	Poultry	Dairying	Animal husbandry	Agronomy	Horticulture
1914 - 15..	.....	\$18,071.04	\$4,200.77	\$399.33	\$394.40
1915 - 16..	\$1,262.99	34,118.88	10,930.35	7,786.21	3,638.55
1916 - 17..	1,077.17	48,097.03	14,898.22	9,299.81	3,117.91
1917 - 18..	2,253.51	43,109.94	43,049.00	18,066.03	9,487.01
1918 - 19..	28,668.36	45,179.02	30,109.09	26,734.63	8,751.89
1919 - 20..	6,891.87	37,703.09	29,250.26	29,494.06	7,846.30
1920 - 21..	18,648.69	54,335.44	35,755.19	33,775.08	11,574.64
1921 - 22..	20,297.75	25,858.68	35,444.41	54,383.96	17,822.20
1922 - 23..	29,090.53	48,609.94	44,600.38	66,645.29	34,114.81
1923 - 24..	38,176.48	50,966.23	46,851.16	75,176.15	29,937.13
1924 - 25..	32,703.35	38,420.70	44,462.71	73,271.88	18,319.69
1925 - 26..	48,230.00	30,963.05	49,348.56	52,375.00	32,770.00
Total.....	\$227,311.72	\$475,433.03	\$388,900.10	\$447,407.43	\$177,774.53

Number of Farmers as a Measure

Another method of measuring extension effort is to compare the number of persons influenced by extension work in a particular enterprise with the number of farmers who conduct that enterprise. It is interesting to note that wheat, alfalfa, and potatoes are grown and beef produced on approximately 150,000 farms in the 11 Western States. The crops project for this area had between 1,000 and 1,200 demonstrations, whereas the beef project had only 220 demonstrations. The number of practices adopted ranges from 4,300 to 7,000, and the number of club members completing their enrollment from 7 to 325, the enrollment in wheat and alfalfa being practically negligible. Completions for potatoes were 325. Comparing the beef enterprise with the dairy enterprise, we find twice as many farms reporting dairy cattle as beef. The number of demonstrations completed and practices adopted for dairy cattle are six times as great as for beef cattle.

The club enrollment for dairy cattle is 11 times as great as for beef cattle. Of all the enterprises apparently the extension work with sheep is the least effective of the animal extension activities. The interesting features of these data as they apply to the West are the attractiveness of the dairy, sheep, and swine enterprises to club members. More junior club members take up and complete the livestock projects than do adult farmers complete their demonstrations.



Table 3.- Extension Results, 11 Western States  
(Average 1923 to 1925 inclusive)

Item	Farms reporting	Demonstrations completed	Club completions	Farmers adopting practices
Wheat.....	150,000	1,200	17	7,000
Alfalfa.....	150,000	1,100	7	4,300
Potatoes.....	150,000	1,000	325	5,700
Beef.....	150,000	220	135	5,500
Dairy cattle.	300,000	1,350	1,500	35,000
Sheep.....	50,000	135	425	1,250
Swine.....	250,000	350	1,660	4,000
Poultry.....	400,000	1,350	1,440	15,000

Another interesting feature is that there is practically no extension work with horses, which have an economic value far exceeding dairy cattle, swine, and poultry.

Relative Importance of Enterprise in States as a Standard

Another method of measuring the emphasis of the extension program is to compare in the different States the relative importance of the enterprise with the number of demonstrations completed, club completions, and number adopting practices. For example, poultry is more important in California than in the other 10 Western States. California also has the highest number of completed demonstrations, club completions, and practices adopted.

Table 4.- Relative Importance of Poultry Extension Activities, 11 Western States (Average 1923 to 1925 inclusive)

State	Order of importance poultry industry	Completed demonstrations	Club completions	Farmers adopting practices
California..	1	1	1	1
Washington..	2	8	4	2
Oregon.....	3	11	2	8
Colorado....	4	2	3	3
Montana.....	5	3	5	7
Idaho.....	6	4	10	6
Utah.....	7	7	8	10
New Mexico..	8	6	6	5
Wyoming.....	9	5	7	4
Arizona.....	10	10	9	9
Nevada.....	11	9	11	11



Washington is second in importance in size of the enterprise, but eighth in demonstrations completed, and fourth in club completions.

Oregon is third in the relative importance of the enterprise, eleventh in completed demonstrations, eighth in practices adopted, but second in club enrollment.

Relative Numbers of Farmers Having Poultry as a Standard

If, instead of measuring the poultry extension activities on the basis of relative importance of different States, we measure on the basis of number of persons per 1,000 farms reporting that enterprise, we get an entirely different picture. We find, for example, that the number of demonstrations completed range from 1.3 to 19 per 1,000 farms, the club enrollment from slightly less than  $\frac{1}{2}$  to more than 6, and the practices changed from 11 to 96. It also shows that the States which stood at the head of the list do not necessarily stand at the head of the list when the comparisons are made on the basis of number of farms to be reached.

Table 5.- Number Reached Per 1,000 Farms Reporting Poultry, 11 Western States (Average 1923 to 1925 inclusive)

State	Demonstrations completed	Club completions	Farmers adopting practices
California.....	4.0	5.9	59
Washington.....	1.3	2.4	36
Colorado.....	4.6	3.8	24
Montana.....	2.8	3.1	16
Oregon.....	7.3	5.1	11
Idaho.....	3.5	.05	26
New Mexico.....	5.1	5.8	53
Utah.....	4.5	1.8	16
Wyoming.....	9.7	6.3	96
Arizona.....	4.7	4.8	47
Nevada.....	19.3	6.3	42

Similar Standards Applied to Dairy Industry

If we make a similar comparison for dairying, we find again that California, Washington, and Oregon are the most prominent dairy States. California stands first in demonstrations completed, but fifth in practices adopted. Washington and Oregon stand well up on the list. However, Idaho, which is sixth in importance in dairy production, is third in number of demonstrations completed, fourth in club members completing, and fourth in practices adopted.





Table 6.- Relative Importance of Dairy Extension Activities, 11 Western States (Average 1923 to 1925 inclusive)

State	Order of importance dairy industry	Demonstrations completed	Club completions	Farmers adopting practices
California.	1	1	2	5
Washington.	2	2	3	1
Oregon.....	3	4	1	2
Colorado...	4	5	5	9
Montana....	5	9	7	6
Idaho.....	6	3	4	4
Utah.....	7	7	9	3
Wyoming....	8	8	6	7
Arizona....	9	11	11	10
New Mexico.	10	6	8	8
Nevada.....	11	10	10	11

When the States are compared as to the number of farmers having dairy cattle, California, which is the head of the list in number of farms, is tenth in rank on the basis of practices adopted per 1,000 farms reporting dairy cattle. In other words, we find the range in practices adopted from 30 to 300, in club enrollment from 1 to 10, and in demonstrations from 1 to 15.

Table 7.- Number Reached Per 1,000 Farms Reporting Dairy Cattle (Average 1923 to 1925 inclusive)

State	Demonstrations completed	Club completions	Farmers adopting practices
California....	4	4	50
Washington....	5	4	157
Oregon.....	5	10	161
Colorado.....	5	4	30
Idaho.....	6	6	156
Montana.....	1	3	66
Utah.....	3	3	307
Wyoming.....	6	15	261
Arizona.....	3	1	149
New Mexico....	15	7	182
Nevada.....	10	3	167

In athletic contests the team that has the largest numbers of first and seconds wins. In order to determine which States were reaching the larger proportion of its farmers, the relative standings were added for seven enterprises and the States arranged accordingly. This arrangement showed that a State with a low number of farmers reached a higher percentage, whereas those States with a more dense farm population reached a lower percentage. This



raises the additional question as to whether methods used in the extension program should not be varied to meet the situation.

Table 8.- Relative Standing of Practices Changed Per 1,000 Farms Reporting Individual Enterprise

State	Poultry	Beef	Sheep	Dairy cattle	Wheat	Alfalfa	Potatoes	Total
Wyoming...	1	1	1	2	7	3	2	17
Utah.....	9	7	2	1	3	8	6	36
Arizona...	4	5	3	8	8	9	1	38
Nevada....	5	2	6	4	9	7	5	38
New Mexico	3	4	10	3	10	4	4	38
Idaho.....	7	3	9	7	5	5	3	39
Washington	6	10	4	6	4	2	7	39
Montana...	10	6	5	9	2	6	8	46
California	2	9	8	10	1	11	10	51
Oregon....	11	8	11	5	6	1	9	51
Colorado..	8	11	7	11	11	10	11	69

Influence of Numbers of Farmers Per Counties on Extension Program

The actual numbers reached per 1,000 farms having an enterprise are shown in the following table. These data show that certain enterprises lend themselves to improvement through extension work. For example, a larger proportion of the dairy farmers was reached than of any other of the seven groups except two. The work with sheep seemed to reach the smallest proportion.

Table 9.- Number of Practices Changed Per 1,00 Farms Reporting Individual Enterprises

State	Poultry	Beef	Sheep	Dairy cattle	Wheat	Alfalfa	Potatoes
Wyoming..	96	105	71	261	72	49	71
Utah.....	16	35	43	307	108	14	46
Arizona..	47	44	26	149	58	13	91
Nevada...	42	85	21	167	51	18	49
New Mexico	53	48	17	182	35	34	52
Idaho....	26	72	17	156	93	30	55
Washington	36	18	25	157	97	65	35
Montana..	16	43	24	66	108	21	34
California	59	20	19	50	125	8	29
Oregon...	11	35	16	161	78	92	29
Colorado.	24	11	20	30	25	8	28



## What Determines Present Extension Programs

The above comparisons relate primarily to the entire accomplishment for the enterprise and the relative importance of the enterprise. When we begin to study the specific practices within the enterprise changed, we find some very interesting comparisons. For example, in dairying, 75 per cent of the farmers who changed practices because of extension work, tested their cows for tuberculosis, and more than 50 per cent of the ranchmen changing practices with reference to beef production vaccinated their animals for blackleg. If we study the different enterprises we find one or two practices that were affected by 75 per cent of the changes made. This raises the point as to whether tuberculosis and blackleg, hog cholera, and the like are the most serious problems in livestock enterprises, whether seed stocks and their improvement are the most serious crops problem, and why spraying and pruning are more important with fruits than varieties.

A study of the practices changed most frequently indicates that they have the following characteristics: (1) Simple comparison; (2) immediate results; (3) little or minimum effort on the part of the individuals concerned; (4) small sacrifice; and (5) consciousness of a difficulty.

### Why Tuberculosis Work Succeeds

One of the means that has made farmers conscious of tuberculosis in their cows has been the existence in many cities of ordinances requiring dairy cows to be tested. Most States also have a law that will not permit the introduction into the State of cows without a certificate indicating their freedom from tuberculosis. The results of the test are immediate in that the simple method used indicates whether the animal has the symptoms, and further proof can be obtained if the animals are posted after slaughter. Although many of the sacrifices the farmer makes are large, the increase in price for tuberculosis-free cattle apparently overcomes this annoyance. The work is done mostly by a hired veterinarian. The farmer is recompensed for, at least, a part of the value of the animal.

### Why Vaccination for Blackleg Succeeds

The farmer becomes aware of blackleg in his cattle as soon as his losses become evident. It is easy for him generally to obtain the vaccine locally or through an organization built up by the county agent. A comparison of the benefits to be derived from vaccinating his cattle with the losses to be suffered from not vaccinating leaves no doubt in the farmer's mind as to the proper action to take.



Table 10.- Livestock Extension Results in 11 Western States

Item	Beef			Sheep			Dairy Cattle			Swine		
	1923	1924	1925	1923	1924	1925	1923	1924	1925	1923	1924	1925
Farmers reporting, 1920 .....	150,000			50,000			300,000			255,000		
Adult demonstra- tions completed....	281	252	232	71	134	198	1,314	1,774	1,042	504	359	201
Farmers adopting practices.....	6,633	4,812	5,410	1,078	1,238	1,472	41,595	31,830	31,459	6,238	3,204	2,175
Club enrollment....	190	174	252	263	509	1,042	1,420	2,572	2,279	2,982	2,331	1,669
Club completions...	129	100	186	196	340	758	1,078	1,788	1,694	2,130	1,658	1,220
Purebred sires.....	590	502	496	281	335	469	2,586	1,542	1,351	885	688	568
Rations.....	522	283	301	151	156	231	5,181	4,285	2,666	2,133	822	627
Tuberculosis.....	1,312	1,607	1,620	-----	-----	-----	31,182	22,670	23,427	-----	-----	-----
Blackleg.....	4,637	1,371	3,031	-----	-----	-----	1,898	672	1,313	-----	-----	-----
Cholera.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	645	466	264
Culling.....	143	174	160	62	59	99	1,745	1,642	1,167	476	75	48





## Why Dairy Rations Succeed

In changing dairy rations the comparison shows up in the milk pail within a few days or a week. If the result is not satisfactory, it is easy for the farmer to drop back into his old method. As a general rule, the increase in receipts of milk and his cash returns are sufficient to make him continue the improved practice.

It is interesting to note that tuberculosis work is most important in the States attempting to build up a trade in high-producing cows. The work in rations is prominent in States where a great deal of feed is purchased.

### Comparisons

A study of the successful extension work indicates that easy comparisons are such as yields of grain, increased milk and egg production, and characteristics to observe in culling chickens, and that the difficult comparisons are those made in culling beef cattle, which requires the type of expertness that is found in stockyards, or those made in the production of high-producing pure-bred sires which becomes a highly specialized business.

### Subdivision of Labor

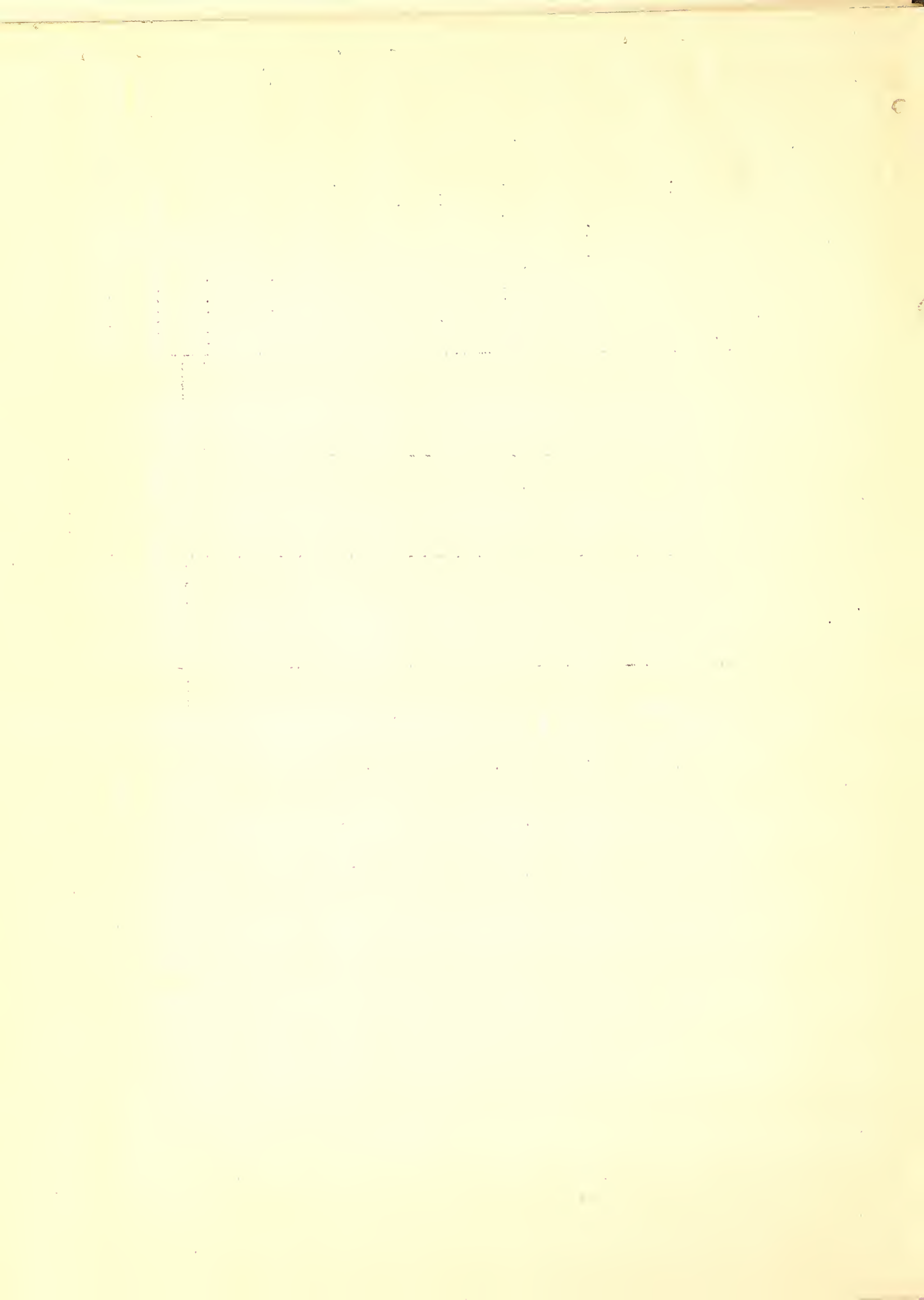
Progress in agriculture has been caused by the subdivision of labor. Inquiry may therefore be made as to whether it is not a part of the job of the extension agents to build an economic machine to make improved practice a habit. In former times the farm was a production and manufacturing unit. The farmer made his own plows and clothing and most of his own tools and instruments, but gradually these processes have been subdivided and have become factory processes. For example, in the very early days the farmer performed all the operations in raising fruit. Now special crews do the spraying and another crew the harvesting; special storage houses have been established and marketing organizations built up. It then may be questioned as to whether it is not the job of the extension worker to analyze the various steps in the different enterprises and organize individuals to take over and perform these steps. For example, at the present time we have special organizations to test cows, cull chickens, candle eggs, breed high-producing stock, certify seed, classify cotton, and mix fertilizers and rations. A study of the ratio between farmers producing or selecting high-yielding strains of particular varieties of grain and the number purchasing such seed is about 1 to 3. In other words, it is easier to purchase pure seed than it is to attempt to produce it under ordinary farm conditions.



Table 11. - Extension Activities, 11 Western States

Item	Wheat			Alfalfa			Potatoes		
	1923	1924	1925	1923	1924	1925	1923	1924	1925
Farms reporting, 1920.....	150,000			150,000			150,000		
Method demonstrations.....	402	267	286	427	422	533			
Result demonstrations started or under way.....	1,566	1,706	1,350	1,135	1,408	1,516	1,274	999	1,162
Result demonstrations completed.....	1,393	1,447	978	948	1,139	1,359	1,012	869	944
Acres in completed demonstrations.....	70,110	67,903	115,461	15,179	17,894	24,659	5,426	4,009	4,157
Junior clubs.....	9	1	1		5	3	64	59	105
Members enrolled									
(a) boys.....	39	15	8		23	19	76	439	493
(b) girls.....	2		1				46	20	25
Members completing									
(a) boys.....	31	15	3		10	10	322	311	511
(b) girls.....	1		1				32	11	13
Acres grown by club work completing.....	60	127	32		22	10	253	321	302
Planting improved seed.....	7,221	2,197	3,082	2,505	1,217	1,824	3,613	1,163	1,623
Practicing seed selection.....		388	649		132	288		915	858
Treating for smut.....	17,483	1,628	2,256		969	1,414	5,406*	1,334	1,738
Spraying or dusting.....							2,163	417	383
Farms adopting practices.....	33,260	6,871	6,969	4,902	4,161	3,975	9,140	3,554	3,896

\*Treating seed for disease.



## Conclusion

The above facts raise the following questions-

Is the ultimate objective of extension work:

- (1) To put additional dollars in the farmer's pockets?
  - (a) By helping him when he is in an embarrassing situation (disease and pest control).
  - (b) By building up an economic machine to perform certain farm operations for him (cow-testing association, bull association, breeders association, certified seed association).
  - (c) By training him to analyze his own business and observe demonstrations farmers practice and improve his own methods of operation (farm-management demonstrations, enterprise costs).
  - (d) By giving him simple standards or comparisons by which he can measure his own results and determine what improvement might be profitable (bushels of grain, dozens of eggs, and the like).
- (2) To stimulate a desire for a better standard of living and the provision of means to obtain that standard?

-ooOoo-





