CONFIDENTIAL -Not for publication.

OUR AGRICULTURAL PLANT

In discussing the problem of Consumption and International Trade as related to Production, we need, first of all, to have clearly in mind what we have available in the way of productive resources, what variations in output we have obtained from their use, as well as something with respect to their potentialities. We shall start the discussion, therefore, with a consideration of our agricultural plant.

What, then, do we have available in the way of resources in land, capital investment and labor force with which to produce farm products? According to the 1929 Census of Agriculture we had 413 million acres of crop land in the United States, representing, roughly, 40 per cent of our 987 million acres in farms. Only 359 million acres of this total, however, were in harvested crops, the remainder being classified either as land in crop failure or in fallow or idle.

The Census did not obtain the acreage in improved land, but a rough approximation of the total may be ascertained by adding the acres in plowable pasture to the total acreage in crops. Such an approximation will give a total improved area of around 522 million acres. If we relate this acreage to the total land area, we find that only slightly over one-fourth (27.4 per cent) of our total land area is now improved and capable of producing crops. Of the remaining 70 odd per cent, approximately one-fifth (355 million acres) was in woodland and other pasture, the remainder being in deserts, swamps, mountains, streams, roads, cities, etc.

The lack of agricultural development on such a large proportion of our land area is to be accounted for largely by uneven terrain, lakes,

rivers and streams, by lack of rainfall, by poor drainage or excessive temperature and evaporation. Economic forces also, of course, play a part. The level of agricultural prices has a very important influence in determining not only the way in which the land is utilized, but may be the final determinant in whether it is utilized at all.

The proportion of the farm area utilized in crop production varies widely in different parts of the country. Whereas the total land in crops represents 42 per cent of the farm area for the country as a whole, in the North Central States it represents 57 per cent; in the South, 40 per cent; in the East, 43 per cent; and in the Western States, 22 per cent. The crop-land not utilized for harvested crops in 1929 likewise varied widely, because of crop failure and land left idle or in fallow, varying from 10 per cent in the North Central States to, roughly, 20 per cent in the South and Northeastern States, to 27 per cent in the Western States. Similar variations occurred in both plowable and other pasture land.

(See Table 1 on Page 3)

Table 1.- Distribution of Our Agricultural Resources in 1929, by Geographic Regions

Item	Unit	United States	Geographic Regions			
			North Central	South	Northeast	West
Number of farms	Number	6,288,648	2,079,257	3,223,816	482,528	503,047
Farm population	"	30,445,350	9,557,068	16,319,684	2,280,970	2,287,628
Rural non-farm population	"	23,374,873	6,685,943	8,633,701	5,439,438	2,615,791
Agric. workers over 10 yrs. gainfully employed	"	10,471,998	3,148,220	5,581,438	794,978	947,362
Total land in farms	Acres	986,771,016	376,379,086	343,086,418	49,330,342	217,975,170
Total crop land	"	413,235,890	213,716,864	129,059,813	20,970,318	49,488,895
Harvested	"	359,242,091	195,360,014	109,505,307	17,982,937	36,393,833
Crop failure	"	12,706,583	5,652,517	4,030,951	376,807	2,646,308
Idle or fallow	"	41,287,216	12,704,333	15,523,555	2,610,574	10,448,754
Plowable pasture	"	109,159,914	49,033,862	35,121,209	5,317,547	19,687,296
Woodland and other pasture	"	354,994,610	47,188,171	117,019,115	13,164,897	139,314,970
Value of buildings, excluding dwellings	Dollars	5,866,457,624	2,345,690,530	1,066,821,876	958,076,954	495,868,264
Value of machinery and implements	"	3,301,654,481	1,717,811,352	696,740,267	447,319,555	439,783,307
Value of machinery and equipment per agric. worker gainfully employed	"	315.00	545.00	125.00	563.00	464.00
Machinery & Equipment per acre of harvested crop land	"	9.19	8.79	6.36	24.87	12.08
Income per rural inhabitant	"	361.68	491.21	216.11	487.82	733.19
Grain consuming animal units	Number	134,714,000	67,324,000	36,304,000	17,092,000	13,993,000
Hay consuming animal units	"	75,723,000	25,676,000	22,157,000	14,216,000	13,672,000

In addition to these resources in land, we had a total investment in buildings, excluding dwellings, of close to 6 billion dollars, and in implements and machinery of another 3-1/3 billion dollars. The investment in machinery and equipment per crop acre for the country as a whole represented $9.19 per acre; in the North Central States it amounted to $8.79 per acre; in the South, to $6.36 per acre; in the Northeast, to $24.87 per acre; and in the West, to $12.08 per acre. On the other hand, the investment per rural farm inhabitant over 10 years of age, gainfully employed, varied from $125.00 in the South to around $500.00 more in the other geographic regions. This indicates a rather wide range in the amount of productive capital associated with a given unit of labor in different parts of the country.

In addition to the capital invested in buildings and equipment, there were further resources in the form of livestock. Measured in terms of animal units, there were, roughly 135 million grain and 76 million hay consuming animal units on farms in 1930. Approximately 1/2 of the grain consuming, and 1/3 of the hay consuming animal units were in the North Central States.

All of these resources in land, buildings, equipment, and livestock were under the direct control of a rural farm population representing 30 million total inhabitants. Of this total, approximately 10-1/2 million over 10 years of age were gainfully employed. There were 23 million additional rural non-farm inhabitants who were dependent in part or wholly upon agriculture.

Variations in Output which have Resulted from these Resources.

Although the data presented in the foregoing table measure our resources as of a particular time, they do not show what fluctuations have occurred over a period of years, nor do they show what variations in output have resulted from their use.

Disregarding the fluctuations in capital invested in land, buildings, and equipment, and centering attention first upon changes in improved and harvested crop land, we note that there has been a pronounced upward

Table 2. - Acreage in Improved and Harvested Crop Land and Total and Farm Population in U. S., 1899 to 1929 1/.

Year	Acres in: Improved land 2/	Acres in: Harvested Crop land	Population: Total	Population: Farm
	Millions	Millions	Thousands	Thousands
1929	522	359	122,775	30,445
1924	505	345	112,370	31,056
1919	503	349	105,710	31,614
1909	478	311	91,972	32,077
1899	414	283	75,995	30,121 3/

1/ U. S. Census data 1900-1930.
2/ Acreage: 1849, 113,032,614; 1859, 163,110,720; 1869, 188,921,099; 1879, 284,711,042; 1889, 357,616,755. Improved land, 1919-1929, includes total crop land plus plowable pasture.
3/ Estimated by Dr. O. E. Baker.

shift in both. Over the 30 year period, from 1899 to 1929, improved land increased over 100 million acres, or an increase of slightly over one-fourth. During the same period our harvested crop area increased in almost exactly the same ratio, or from 283 to 359 million acres.

Changes in neither improved nor harvested crop land, however, kept pace with changes in our total population. Whereas the former increased only approximately one-fourth during the 30 year period, the latter

increased around 60 per cent. The farm population, however, was but slightly larger at the end of the period than at the beginning. In other words, the amount of land associated with a given unit of the population which farmed it, actually increased. A rural farm population not only handled a larger area per capita but at the same time were able to feed and clothe the total population with a smaller acreage per capita of the total population at the end of the period than at the beginning.

Table 3.- Acreage and Production of Specified Grain and Hay Crops, 1919-1934.

Year	Feed Grains 1/		Small Grains 2/		Tame Hay	
	Acreage	Production	Acreage	Production	Acreage	Production
	1000 acres	1000 tons	1000 acres	1000 tons	1000 acres	Short tons
1919	150,620	89,849	83,964	32,221	56,020	76,589
1920	158,070	106,494	70,858	28,792	56,769	76,164
1921	161,892	94,647	72,190	27,673	57,448	71,035
1922	152,766	86,577	71,049	29,742	59,280	80,790
1923	154,873	93,955	65,434	25,841	57,717	75,286
1924	155,005	82,460	61,510	28,765	59,058	80,118
1925	160,029	97,068	60,854	22,935	55,064	67,155
1926	156,663	84,795	64,655	27,710	54,851	67,478
1927	154,894	89,252	67,637	29,713	56,930	83,648
1928	159,726	96,064	66,788	30,226	53,395	72,586
1929	155,608	86,816	70,964	27,226	55,017	76,110
1930	159,988	78,068	71,543	29,761	52,623	63,566
1931	164,622	88,160	64,092	30,424	54,136	65,341
1932	171,303	100,377	63,845	24,857	53,282	70,199
1933	156,975	74,467	52,359	17,594	53,829	65,852
1934	142,579	54,764	48,572	16,419	53,152	50,727

1/ Includes corn, oats, barley, grain sorghums.
2/ Includes wheat, flax, rye, buckwheat, rice.

Although in 1929 business activity was at a high level, our agricultural output was not at a peak. Measured in terms either of total crop acreage or total production, the output in 1929 was about at the average level obtaining during the period from 1919 to 1934. Combining the principal feed grains (corn, barley, oats and grain sorghums), it will be noted that with the exception of 1920, 1921 and 1925, when the acreage shot up, it

remained on a fairly even keel until 1928 and 1930, when there was a sharp upward tendency until reduced in 1933 and 1934 because of the drought and the emergency control program on corn. With the exception of 1920, production reached its peak in 1932 in the center of the depression. The production in 1929 was exceeded during at least 50 per cent or more of the years.

The small grains, largely dominated by wheat, reached a peak in 1919 but declined steadily until 1926 at which time, with the wide adoption of the general purpose tractor and small combine, the acreage shot forward rapidly until 1930, after which it declined, due in part to low prices and in part to unfavorable weather conditions.

The tame hay acreage has been remarkably stable, but was somewhat lower at the end of the period than at the beginning.

Both the acreage and production of cotton have fluctuated rather widely, varying from a low of 29 million acres to a high of 46 million, and in production from 8 to 17 million bales.

(See Table 4 on Page 8.)

Table 4.- Acreage and Production of Other Specific Crops, 1919-1934.

Year	Cotton		Tobacco		Potatoes		Truck Crops	Fruit	
	Acreage	Production	Acreage	Production	Acreage	Production	Acreage	Apples, peaches, pears	Citrus fruit
								Production	Production
	1000 acres	1000 bales	1000 acres	1000 lbs.	1000 acres	1000 bu.	1000 acres	1000 bushels	1000 bushels
1919	34,573	11,421	1,958	1,444,206	4,092	375,763	-	208,970	33,030
1920	35,872	13,440	1,935	1,509,212	4,069	446,028	-	269,738	43,739
1921	29,716	7,954	1,339	1,004,928	4,417	399,270	-	139,377	34,123
1922	32,176	9,755	1,616	1,254,304	4,765	497,953	-	267,333	44,218
1923	37,000	10,140	1,855	1,517,583	4,053	430,397	-	244,195	54,224
1924	40,692	13,628	1,702	1,244,928	3,677	430,038	1,942	232,360	44,911
1925	45,972	16,104	1,751	1,376,008	3,456	347,412	2,162	219,718	51,479
1926	45,847	17,977	1,628	1,289,272	3,459	385,881	2,040	322,907	57,620
1927	39,479	12,955	1,556	1,211,311	3,890	439,969	1,952	180,003	48,732
1928	43,735	14,478	1,864	1,373,214	4,107	485,276	2,179	269,302	75,809
1929	44,458	14,828	1,988	1,537,313	3,619	392,615	2,431	199,433	49,690
1930	43,339	13,932	2,112	1,647,377	3,679	385,810	2,782	233,156	82,154
1931	39,109	17,095	2,014	1,607,484	4,151	436,037	2,564	302,347	73,335
1932	36,542	13,002	1,414	1,022,558	4,307	436,440	2,262	205,268	72,971
1933	40,929	13,177	1,754	1,396,174	3,945	382,212	2,205	210,345	67,705
1934	27,241	13,047	1,364	1,078,117	3,383	401,317	-	136,684	-

Tobacco reached a peak in the years 1929, 1930 and 1931, when it fluctuated around 2 to 2.1 million acres. Production also was at a peak in these same years. Potatoes, like cotton, have fluctuated quite widely, the acreage varying from a low of 3.4 million to a high of 4.8 million, and production from 347 to 498 million bushels. Citrus fruits have shown the most pronounced upward trend of any of the crops, going from 33 million bushels in 1919 to a high of 82 million bushels in 1930.

Table 5.- Livestock Numbers and Production in U.S., 1919-20 to 1932-33.

Year	Livestock Numbers or Production				
	Horses and Mules	Pork Production	Milk Production	Beef Production	Number Chickens
	Millions of head or billions of pounds produced				
1919-20	27.8	14.1	79.5	12.6	368
1920-21	27.0	14.3	83.5	11.5	362
1921-22	26.3	15.2	86.0	12.1	401
1922-23	25.6	17.4	89.0	12.3	413
1923-24	24.7	17.0	91.5	12.7	449
1924-25	23.8	14.8	92.6	12.9	418
1925-26	23.0	14.6	96.0	13.0	425
1926-27	22.1	15.4	98.2	12.2	451
1927-28	21.1	16.7	99.4	11.5	467
1928-29	20.2	16.5	101.9	11.6	445
1929-30	19.4	15.3	102.6	11.4	470
1930-31	18.8	15.9	104.8	11.5	460
1931-32	18.1	16.2	104.7	11.1	451
1932-33	17.6	16.9	105.1	12.6	462

Of the livestock and livestock products, milk production has shown the most pronounced upward trend, passing the 100 billion pound limit first in 1928-29. From 1919-20 to 1932-33, milk production increased from around 80 billion to 105 billion pounds, or an increase of 30 per cent. During this same period horse and mule numbers dropped from 27.8 million head to 17.6 million head, or a decrease of 36 per cent. Both pork and beef production have fluctuated with the cycle. Chicken numbers, on the other hand, have shown a gradual upward tendency.

Our Capacity to Produce Agricultural Products.

From Census, Crop Estimate and other data we can get a fairly clear picture of what our resources are in the way of land, capital investment, labor force, etc., and what variations in output have resulted from their use. The problem of measuring potential capacity, of course, is more difficult. In order to arrive at an estimated total, the problem has been broken down into two parts. On the one hand, there is the problem of determining to what extent we can extend our crop area, and on the other, the problem of measuring past or prospective changes in efficiency.

What are the Possibilities for Expanding our Crop Area?

The Census of Agriculture of 1930 showed a total area of 413 million acres designated as crop land. Of this total area, however, only 359 million acres were in harvested crops. Of the remaining 54 million acres of crop land, 41 million acres were either idle or fallow and 13 million acres were in crop failure. Although a certain proportion of our crop land will always remain idle, because of crop failure, the bulk, if not all, of those 54 million acres probably are potentially available for crop production.

In addition to the 413 million acres of crop land, the Census reported a total of 109 million acres in plowable pasture. This latter classification comprises land used for pasture in 1929, but which could have been plowed and used for crops without clearing, draining or irrigating. In other words, this area is potential crop land. If we then take the 413 million acres now reported as crop land and add to it the area in plowable pasture, we obtain a total of 522 million acres of potential crop land in the United States.

This total of 522 million acres indicates, in general, the physical limits of expansion in crop area, disregarding other land both in and out of farms which might be cleared, drained, irrigated or otherwise made use of in crop production. This physical potential area, however, obviously is larger than it would be feasible or practicable to go, because of fertility, erosion control, and other considerations. Economic considerations alone probably will be as potent as any single factor in finally gauging the extent to which expansion will take place. We shall disregard economic considerations for the time being, however, and cast the discussion along physical lines.

Viewing the problem from the physical standpoint alone, we have already indicated that the potential crop area of 522 million acres would represent the maximum expansion that could take place. It is obvious, however, that it would not be possible to go this far and still maintain yields, and control the problem of erosion. Furthermore, such an extreme expansion would materially alter our cropping systems and types of farming, in that it would change radically the present relationship between the cultivated crops and the hay and pasture crops as well as our present methods of livestock production.

A more tenable basis is to consider that the practical limit of expansion will be determined by the proportion of the physical potential area which will have to be retained in hay, pasture and cover crops, to maintain existing yields and minimize erosion. Just what this proportion would have to be in various parts of the country, of course, no one knows with any very high degree of definiteness. It probably is possible, however,

to reach an approximate figure by drawing on both the practical experience of farmers in particular regions and upon the experimental evidence of the Agricultural Colleges and Experiment Stations.

It is a known fact that thousands of farmers following a definite rotation practice, in which the legume and grass crops are grown in certain proportions, have been enabled not only to maintain, but also to increase yields a great deal on their individual farms. The general adoption of known cropping systems and fertilizer use, on the part of a larger proportion of the mass of farmers, should result in minimizing both erosion and leaching and in increasing average crop yields. Furthermore, as will be pointed out below, there is no preponderant evidence that either the yield of particular crops or the composite yield of all crops, for the country as a whole, is tending downward to any marked extent. Hence, it may be that a higher percentage of the hay and pasture crops, even if the proportion of legumes is not increased greatly, would tend to maintain existing yields.

We know from past experience that farmers en masse are slow to adopt new combinations of crops and cultural practices, even though of demonstrated superiority. It is easy, therefore, to overstate the possibilities of expansion in our crop area, and, at the same time, conserve our soil resources. In our estimates, consequently, we have veered toward conservatism and have sought to avoid overstatement.

To obtain then, what possibly would be a practicable limit of expansion by following this procedure, we first brought together information with respect to the total farm and crop land, land in harvested crops,

land in permanent and plowable pasture, land in hay and annual legumes, and land idle, in fallow or crop failure for the various agricultural regions of the United States. Because of the wide diversity in physical conditions and types of farming, it is necessary to consider each region or subregion of the Country separately.

Inasmuch as the Corn and Cotton Belts, Dairy, General Farming and Wheat Regions comprise the major portion (80 per cent or more) of the crop area of the Country, the calculations are confined to them. This leaves out of account the various fruit, vegetable, special crops, mixed farming and range livestock regions, within which there no doubt are possibilities for expansion.

To ascertain first, what proportion of our arable area farmed is in hay and pasture crops, we added the area in hay crops to the area designated as plowable pasture and divided this total by the sum of our present area in harvested crops and plowable pasture. Inasmuch as the term "plowable pasture" was probably not interpreted by farmers in different parts of the Country in the same way, it is necessary to make certain modifications in the procedure. This is particularly true in the wheat and small grain regions. With the possible exception of the southern part of the Red River Valley and in North Central Oklahoma and East Central Kansas, plowable pasture probably was taken to mean land that could be plowed rather than land that is or has been plowed, and at present, rotated with the land in wheat. One would infer, from the large acreage designated as plowable pasture in the major portion of the wheat region, that a great deal of

native pasture, which has never been broken out, was included in the plowable pasture total.

The major portion of the wheat region, as is well known, does not lend itself to a definite scheme of rotation. In the South, a situation somewhat analogous is encountered; hence, to determine the potential crop area in such regions a somewhat different approach must be used. In the Corn Belt, General Farming and Dairy Regions, however, it is possible to follow a fairly definite sequence of crops, in which hay and pasture crops can and are included in a rotation scheme.

In the first column of Table are shown for the various subregions of the Corn Belt, General Farming, Tobacco, and Dairy Regions, the percentages of the present arable area in hay and pasture crops (excluding the area designated as permanent pasture). In the second column are shown the percentages in which the total potential crop area (present total crop area plus plowable pasture) we have estimated, would need to be in hay and pasture to minimize the problem of erosion to maintain existing yields.

(See Table 6 next page)

Table 6 - Percent of the Arable Crop Land in Selected Agricultural Regions in the United States now in, or Estimated Necessary to be in, Hay and Pasture to Maintain Existing Yields.

Regions	Hay & Pasture in Percent of: Harvested Crop Area Plus Plowable Pasture	Potential Crop Area 1/
Total for Corn Belt	32	31
Total for Western Corn Belt	33	32
Western Transition	36	40
Northern Livestock-Dairy	33	30
Cash Corn and Oats	18	20
Cash Corn and Small Grain	20	25
Central Intensive Feeding	28	25
Southern Pasture and Feeding	44	40
Total for Eastern Corn Belt	29	29
Cash Corn and Small Grain	19	20
Gen. Farming, Dairy, Crop Specialties	36	33
Livestock and Soft Winter Wheat	32	33
Total for General Farming	53	55
Total for General Farming-Soft Winter Wheat	50	50
Ozark-Southeast Kansas, Oklahoma	48	50
Southern Illinois and Indiana	46	50
Eastern Ohio & Middle Atlantic States	56	50
Total General Farming-Limestone Valleys and West Virginia Grazing	61	66
Central Basin of Tennessee	49	60
Va. - W. Va. Grazing Region	76	80
Tenn. Shenandoah Limestone Valleys	55	60
Total for Dairy Regions	57	64
North Pacific Coast	88	90
Total for Lake States Region	47	62
Subregion A (Northern Cutover)	49	50
Subregion B (Southwestern Wisconsin and South Central Minnesota)	38	60
Subregion C (N. Cen. & Eastern Wisc.)	55	80
Chicago-Milwaukee Milkshed	38	40
Detroit-Lansing Milkshed	49	50
Total for New York Milkshed	73	73
Subregion A (Northern and Eastern New York and Western New Jersey)	77	70
Subregion B (Southern New York)	74	75
Subregion C (Northern Pennsylvania)	54	80
Boston Milkshed	90	90
Miscellaneous Dairy Areas	57	60
Total for Tobacco Regions	41	42
Burley	70	60
Flue-cured	16	20
Fire-cured	52	60
Dark Air-cured	55	60
Southern Maryland	47	60
Cigar Types	54	60

1/ Total crop land plus plowable pasture.

These latter percentages are, of course, judgment figures, but are based on the physical conditions in each region, as shown by soil and erosion maps, or known and recommended rotation practice, and upon the difficulties, economic and otherwise, which farmers in certain regions, notably the cutover area of the Lake States, have been encountering.

For the Corn Belt as a whole, it will be observed that the estimated percentage of the potential crop area in hay and pasture is about the same as at present (1929 Census). Variations, however, are to be found in the various subregions. In the Western Transition Region, comprising the broken country of Nebraska, bordering the Sandhills on the east and south and extending into South Dakota immediately west and north of the tier of counties in the extreme southeastern part of the State, the percentage in hay and pasture has been stepped-up from 36 to 40 per cent. Much of this general territory is hilly and broken. Although the rainfall is not as heavy as in some of the areas further east, the soil erodes very easily and a greater proportion of the crop area needs to be in grass crops.

In the other subregions of the Western Corn Belt, the percentages shown conform pretty closely to rotations actually in practice or which are recommended by the Agricultural Colleges. It may be the percentage shown for the intensive feeding region of Northwestern and Central Iowa, Southeastern South Dakota and Western Illinois is not quite high enough. On the other hand, the percentage shown for the Cash Corn and Oats Area of Northwestern Iowa is higher than possibly would be needed. This is particularly true if a rotation including two years of corn, oats, and with sweet clover seeded as a green manure crop and plowed under for corn the following spring

comes to be more widely used.

In the Eastern Corn Belt the percentages shown in hay and pasture are very close to present practice. In Ohio and Indiana particularly, a three year rotation of corn, small grain, plus a hay and pasture crop is quite generally followed. In the cash grain and oats section of East Central Illinois, the figure of 20 per cent in hay and pasture is slightly larger than now followed. In fact, were this 20 per cent to comprise legumes entirely, it would represent a much higher percentage than is now grown in the region and no doubt would result in substantial increases in yields over those now obtained.

In the General Farming Regions, lying largely between the Corn and Cotton Belts and extending into Pennsylvania, Maryland and Virginia, the percentages have been raised slightly. They conform very closely to prevailing and recommended rotation practices in the regions concerned.

In the Dairy Region as a whole, the estimated percentage in hay and pasture is somewhat higher than now prevails. The largest suggested change occurs in the Lake States Dairy Region. It is felt that the percentages in hay and pasture in the northern cutover portion of the region should be increased materially. This subregion as a whole is of low productivity, much of it of questionable farming value. It is also probable that there should be a higher percentage of the crop area in Southwestern Wisconsin and South Central Minnesota in hay and pasture than now prevails. No change is made in the New York Milkshed as a whole, although the percentage in hay and pasture in the subregion in Southern New York and Northern Pennsylvania has been stepped up somewhat.

As indicated above, in neither the Wheat Regions nor in the Cotton Belt of the South is there a definite rotation practice followed. With respect to wheat, the acreage reported as plowable pasture has been assumed to consist largely of native or permanent pasture and to be outside the usual crop area. While, undoubtedly, a certain amount of this area could be plowed and put into wheat, much of it represents land that is poor and unproductive, subject to wind erosion and is located in the general area of low and uncertain rainfall. From the standpoint of probable potential crop area, therefore, it can be pretty well discounted as offering possibilities for much expansion. Furthermore, the price of wheat likely would have to range considerably higher than now is in prospect, to induce farmers to further bring much of it under the plow.

We have assumed, in fact, that the present area in total crop land in the wheat region as a whole roughly represents our potential maximum crop area for that territory. Of this, a certain proportion will need to be kept in hay and in idle and fallow land in order to rest it from continuous wheat culture and to control such noxious weeds as sow, Canadian and Russian thistles, wild oats and quack grass. There is also the added problem of conserving the scanty rainfall for which farmers in many parts of the region have found a scheme of summer fallow indispensable. All of these considerations have led us to adopt the percentages shown in the second column of Table [illegible] which result in an actual decrease in the present crop area for the Wheat Region as a whole.

(See Table 7 on next page)

Table 7 - Percent of the Arable Crop Land in Selected Agricultural Regions now in, or Estimated Necessary to be in, Hay and Pasture or in Hay, Idle or Fallow Land to Maintain Existing Yields.

Regions	Hay and Pasture in Percent of: Harvested Crop Area Plus Plowable Pasture	Potential Crop Area 1/
Total for Cotton Belt	19	18
Southwestern Irrigated Valleys	21	21
Large Scale Cotton Farming	20	15
Oklahoma-Texas General Farming	22	25
Arkansas River Valley and Uplands	26	25
Black Waxy Prairie of Texas	9	10
Post-oak Strip Upper Coastal Prairie	21	25
Hills and Rolling Uplands	22	23
Piney Woods of Northeast Texas	16	20
Southwest Arkansas and Northern La.	16	20
Miss.-La. Clay Hills & Rolling Uplands	25	25
S. E. Texas-Miss. Piney Woods, Cotton and Self-sufficing	25	30
Mississippi and Red River Deltas	12	10
Mississippi-Tennessee Brown Loam Areas	32	30
Tennessee and Limestone Valleys	23	20
Piedmont Region	15	17
Northern Piedmont	13	15
Southern Piedmont	19	20
Gulf Coastal Plain and Peanuts	15	15
Eastern Coastal Plain and Sandhills	10	10

	Idle, Fallow, and Tame Hay in Percent of: Total Crop Land
Total for Wheat and Small Grain Regions	21
Total for White Wheat Region	52
Eastern Washington & Idaho (Palouse)	48
Big Bend	56
Southeastern Idaho	49
Total for Hard Spring Wheat	21
North Central and Eastern Montana	32
S.E. North Dakota & N.E. South Dakota	14
North Central and Western North Dakota	19
Total for Hard Winter Wheat	13
Eastern Colorado and Western Kansas	21
Western Kansas, Panhandle of Oklahoma and Texas.	13
N. Central Oklahoma & E. Central Kansas	9

1/ Total crop land plus plowable pasture.

In the Cotton Belt, the per cent of the present crop land harvested plus plowable pasture in hay and plowable pasture is about 18 per cent for the region as a whole but varies somewhat by subregions. The extent to which the present crop area can be expanded in this region, if we disregard, for the time being, the area both in and out of farms that might be drained or cleared, is determined by the crop land now idle or in fallow. Although some of the crop land now idle is probably very unproductive because of continuous cotton culture, it is probable that the bulk of it could again be brought into use. In estimating the potential increase in crop land in this region, we, therefore, have assumed: (1) that hay and plowable pasture will comprise about the same proportion of the potential crop area as it now does of the present farmed area; (2) that the bulk of the crop area now idle can be brought into use again; (3) that a wider use of cover crops be adopted, and (4) that the use of fertilizer will continue to the same extent, or even greater, than at present.

Cotton yields have tended to increase in the South during the past several years despite the increase in the Cotton area west of the River. This has resulted because of a large number of factors, foremost among which probably are better weevil control measures, and better cultural practices. With a still wider adoption of better cultural practices, particularly with respect to a more extended use of cover crops along with fertilizer, it would appear probable that existing yields can be maintained even though much of the crop land now idle is brought into crop production.

If we may accept then the foregoing assumptions and discussion as

being reasonable and approximately correct, we could expand our present crop area and still maintain existing yields around 10 to 11 million acres. The results of the computations are shown below. The largest increases, as would be expected, come in the Corn and Cotton Belts. Slight increases also are shown for the General Farming and Tobacco Regions. Both the Wheat and Dairy Regions, however, show decreases.

Regions	Changes in Crop Area.
	1,000 Acres
Corn Belt	4,437
General Farming	1,973
Dairy	- 1,631
Tobacco	1,636
Wheat & small gr.	- 3,502
Cotton Belt	8,050
Total	10,963

In addition to the estimated increases in the potential crop area now in crop land and plowable pasture, it is probable that increases equally as great or greater could be obtained in land either in or out of farms through draining, clearing or irrigating. Varying estimates have been made as to such potential increases. Dr. Baker of the Department of Agriculture estimates it may be as high as 20 to 30 million acres, of which probably 10 million acres or more would come from clearing, 10 million acres from draining and possibly 3 million acres from irrigation. If we accept these totals as approximately correct, then our present crop area might be expanded as much as 30 to 40 million acres or more.

While, as we have indicated, it probably would be possible, through the wider adoption of cropping systems of known and demonstrated superiority, use of cover and soil improvement crops, etc., to expand our present crop area and still maintain existing yields, there is no need for such an expansion now. As will be pointed out later, it will be a considerable time in the future before such increases, if any, will be needed. The extent to which increases in crop area will come about or will be needed will be determined by domestic demand conditions in the United States, by changes in population and by the extent to which we regain or expand our export markets for farm products. In fact, for the next few years ahead or until there is a decided improvement in both the domestic and foreign demand for our agricultural products, actually we shall need to shrink our present crop area.

The most feasible way, probably to bring our present crop area into line with the demand for the products produced, is to extensify our farming by substituting hay, pasture and soil improvement crops for the more intensive crops now produced in excess. Such a policy, in the first place, will materially reduce expenses of production, a factor of great importance at any time but particularly so in a low price period. It also will simplify and make easier the maintenance of soil fertility and the minimizing of soil erosion. Likewise, it provides for flexibility in operation, permitting either expansion or contraction as future conditions warrant. Until such time then as our population increases and domestic and foreign demand improves, we shall not need to be greatly concerned with the possibilities for further increases in crop area.