BANCA NAZIONALE DEL LAVORO
QUARTERLY REVIEW

No. 50 September 1959

ERRATA CORRIGE

(Banca Nazionale del Lavoro Quarterly Review, June 1959, No. 49)
On page 215, Table 4, column 1, last entry, please read as follows:

OFFICES OF FOREIGN BANKS IN NEW YORK

Agencies		Representative Offices
. . . . .	. . . .	. . . . .
Banco di Napoli	Italy	Banca Nazionale del Lavoro Credito Italiano Banca Commerciale Italiana Banco di Roma Banco di Sicilia

All communications regarding the Review should be addressed to Banca Nazionale del Lavoro, Ufficio Studi, Roma, Via Vittorio Veneto, 119.

Editor: Dott. LUIGI CERIANI - Ufficio Studi, Banca Nazionale del Lavoro

Agriculture, Economic Development and the Common Market: Italian Problems (*)

> " The improvements which increase the productive powers of the land are such as the more skilful rotation of crops or the better choice of manure. These improvements absolutely enable us to obtain the same produce from a smaller quantity of land. If, by the introduction of a course of turnips, I can feed my sheep besides raising my corn, the land on which the sheep were before fed becomes unnecessary, the same quantity of raw produce is raised by the employment of a less quantity of land ".
>
> DAVID RICARDO
>
> (*Principles of Political Economy*, edited by P. Sraffa, Cambridge, 1951, p. 80).

1. In the " Ten-year Plan for the Development of Employment and Income " (Vanoni Plan) special attention is given, as is known, to the employment of labour, which is the relatively abundant factor in Italy.

Agriculture has such an important role in this Plan as to be regarded as a propulsive sector. This does not mean, however, that the Plan attaches to agricultural investments such particular productivity as to set in motion a process of development which, starting from agriculture, would extend to the entire economy. Productivity is considered, above all, in an indirect manner; it is somewhat of a more concealed nature. Increase in expenditure through expanded total demand would constitute the *primum mobile* in the process, and this is undoubtedly true *in certain conditions*.

(*) For overall picture of the present opinions in Italy we refer especially to the *Proceedings of the annual meetings* promoted by the Chamber of Commerce of Cremona (from 1952 on); the volume regarding the Convention on " Problems relating to agriculture in a developing economy ", organised by the Italian Confederation of Trade Unions (Rome, February 1956), as well as the reports presented to the Convention on the Common

The part relating to agriculture, to which ample space is given, does not add much, to tell the truth, to the basic conceptions of the Plan. It presupposes an identical shift to the right of the curves of supply and demand. Hence relative prices remain constant.

In this article our purpose is to emphasize one aspect of the question, which we believe to be of very great importance: scarcity of land.

We trust that our thinking will clearly emerge from the following pages. Ultimately, it is a matter of the optimum use of the land — the scarce factor — from an agro-economic point of view, which is the *sine qua non* for maximizing national and agricultural product both total and per capita. That, obviously, presupposes also the maximisation of employment. If this condition is not met, employment is less than maximum.

2. Italian agrarian policy has resulted in promoting wheat cultivation on a much more extensive area than the optimum, at the expense of forage crops and the livestock industry. If the area to wheat were the optimum, the yield per hectare would certainly be much higher.

As a first approach one can assume that the high price of wheat has determined an *artificial* raising of the marginal productivity of all the factors co-operating in its production. If the marginal productivity curves of the factors in wheat production should tend to

---

Market held under the auspices of the National Confederation of Tenant Farmers (Rome, January 1958).

Of particular note are the following reports presented at the above mentioned meetings: G. Demaria, "La stentata evoluzione dell'economia cerealicolo-carneo-lattiero-casearia e positive misure economiche per il suo progresso"; G. Medici, "La meccanizzazione dell'agricoltura nell'economia italiana"; G. Demaria, "La stabilizzazione dei prezzi e dei redditi in agricoltura"; G. Orlando, "Intorno allo schema di sviluppo dell'occupazione e del reddito con particolare riguardo all'agricoltura"; F. Feroldi, "I problemi dell'economia agricola nel Mercato Comune"; F. Vito, "L'agricoltura nello sviluppo economico e sociale del paese"; E. Pampaloni, "Gli aspetti tecnici fondamentali dello sforzo per l'incremento della produttività del suolo"; G. Dell'Amore, "Il finanziamento dell'agricoltura"; C. Bonato, "La politica dei prezzi agricoli"; A. Ramadoro, "L'ottimo impiego del terreno e il futuro della riforma"; F. Vito, "Il Mercato Comune Europeo e la posizione dell'agricoltura; P. Saraceno, "La politica della Comunità Economica Europea e l'agricoltura"; C. Bonato, "Le ripercussioni del Mercato Comune Europeo sull'agricoltura"; M. Bandini, "La politica agraria italiana".

decrease at the same rate, the proportions between the factors themselves would remain unchanged. Thus the gain made possible by the wheat policy would be proportionately distributed, the prices of the factors being proportional to the respective marginal productivities.

In practice, the marginal productivities of the factors do not fall uniformly. The high price of wheat has definitely raised the marginal productivity of land in relation to the marginal productivity of the co-operating factors, so that the increase in production has resulted in using a greater proportion of land and a smaller proportion of the other factors. In other words, cultivation has become *more extensive*. For every quintal of wheat produced, more land has been used than would have been necessary otherwise. The high price of wheat has thus led to maximizing the reward of land rather than output per hectare. The effect has been more important in the poorer areas where marginal productivity of land was already high.

It is true that for soft wheat there has been an increase in unit yield, due to progress in genetics. However, this increase in yields due to an *innovation* in no way alters the fact that cultivation has become more extensive, as stated above. Obviously two different factors are involved, even if superimposed: yields could have been still higher. Instead, the increase in unit yields through improvement in genetics explains how national wheat requirements have been covered and even exceeded.

As regards hard wheat, however, improvement in genetics has been practically negligible and the unit yields have remained more or less the same for decades. This is characteristic of wheat cultivation in the greater part of Southern Italy, Sicily and Sardinia.

Here we shall not analyse the negative consequences of such a policy of high prices from a general point of view. We cannot, however, refrain from calling attention to its negative consequences on the agronomic point of view, as regards the productivity of large areas; nor can we fail to note how this policy has lessened the function of foreign trade, which, through the exchange of goods, should serve to correct and not aggravate the scarcity of land, on the one hand, and the under-employment of labour, on the other hand.

Italy, short of land as she is, is becoming an exporter of wheat, a commodity the production of which involves a large proportion

of land, while she has become a large importer of meat (although consumption per head is still low), a commodity which requires a high proportion of labour, which is already not fully employed.

3. The agricultural area of the European Economic Community is about 78 million hectares; one half in France, approximately 27 per cent in Italy, 18 per cent in Germany, and the remainder in other countries (Table 1).

TABLE 1

AGRICULTURAL LAND AND ITS DISTRIBUTION
(1952-55: *thousands of hectares*)

	Belgium Luxemburg	France	Germany (F.R.)	Italy	Netherlands	Total E.E.C.
Agricultural area . . .	1,892	39,131	14,229	20,847	2,319	78,418
(in %)	(2.4)	(49.9)	(18.1)	(26.6)	(3.0)	(100.0)
Arable land:	1,099	21,305	8,664	15,676	1,054	47,798
Tillage	1,000	16,058	8,436	12,818	1,021	39,333
Temporary grass land .	99	5,247	228	2,858	33	8,465
Permanent grass land . .	793	12,339	5.565	1,248	1,265	21,210
Rough grazings	—	5,487	—	3,923	—	9,410

Source: OECE, *Statistiques de l'agriculture et de l'alimentation*, Paris, 1956.

In 1956 the active population engaged in agriculture was about 18 million, of which 42 per cent in Italy, 28 per cent in France, 25 per cent in Germany, and the rest in other countries (Table 2).

Among the six countries of the Community, Italy has the highest percentage of her active population engaged in agricultural occupations. At the last census (1951) this was 41 per cent and it may be estimated to have fallen to 37-38 per cent at present. During recent years there has been a large exodus from the rural area and this trend still continues. But the available land per person engaged in agriculture is still very small and will continue to be so for a long time. In the Vanoni Plan surplus farm labour is rightly considered a national and not just a sectional problem.

TABLE 2

POPULATION AND LABOUR FORCE (1956)

Countries	Population (1)		Active Population (2)				
			Total		Agricultural		per cent of the active population in agriculture
	Thousands	%	Thousands	%	Thousands	%	
Belgium-Luxemburg .	9,236	5.7	3,589	5.0	385	2.2	10.7
France	43,648	26.8	19,113	26.7	5,030	28.4	26.3
Germany (F.R.) . .	50,786	31.2	25,197	35.1	4,400	24.8	17.5
Italy	48,279	29.6	19,701	27.5	7,400(3)	41.7	37.6
Netherlands	10,888	6.7	4,079	5.7	509	2.9	12.5
E.E.C.	*162,837*	*100.0*	*71,679*	*100.0*	*17,724*	*100.0*	*24.7*

Source: (1) ISTAT, *Bollettino mensile di Statistica*. (2) BENEDETTO BARBERI, "La circolazione delle persone nell'economia europea integrata", in *L'Industria*, 1958, No. 2. The figures relative to the working population refer to those employed, with the exception of the Italian figures. (3) Estimates based on direct and indirect statistics at our disposal.

Note - The percentage of women in agriculture at the time of the censuses was as follows: Belgium-Luxemburg (1947) 16.4; France (1954) 35.1; Germany (F.R.) (1950) 54.7; Italy (1951) 24.6; the Netherlands (1947) 22.5. See: FAO, *Yearbook of Food and Agricultural Statistics*, Vol. XI, Part I, 1958.

The land-labour ratio shows, more strongly than merely general statements can, how great is the scarcity of land in Italy. The Italian farmer has available an average of 3 hectares or a little less, the German not much more, but the Belgian-Luxemburg and Dutch farmers have almost 5 hectares and the French almost 8 (Table 3).

If women were converted into "man units", or if only men were considered — as would perhaps be more correct, taking into account the uncertainty (which occurs everywhere) concerning the degree of effective employment of women in agriculture — the relative position of Italy would improve slightly compared with Belgium-Luxemburg, while it would become worse compared with France and considerably worse compared with Germany.

TABLE 3

AGRICULTURAL LAND PER INHABITANT AND PER PERSON ENGAGED IN AGRICULTURE

Countries	Per Head		Per person engaged in agriculture	
	Hectares	Italy = 100	Hectares	Italy = 100
Belgium-Luxemburg .	0.20	47	4.9	175
France	0.90	209	7.8	279
Germany (F.R.) . .	0.29	67	3.2	114
Italy	0.43	100	2.8	100
Netherlands	0.21	49	4.6	164
E.E.C.	*0.48*	*112*	*4.4*	*157*

The most important aspect of this problem consists in the low level of our per capita agricultural income, which is also determined by the fact that unit yields in Italy are rather low.

It is not easy to provide comparable data concerning the real agricultural income per head of the six countries, as one would have to eliminate the disturbing factor arising from the fact that prices received and paid by farmers are not the same.

By re-calculating production available for sale in terms of Italian prices, it is seen that the output per hectare in Italy is almost 1/5 greater than that of France, 30 per cent lower than in Germany, but less than one half of that of Belgium-Luxemburg and the Netherlands. The differences in terms of added value per hectare are somewhat reduced — as the percentage of services and commodities acquired by the non-agricultural sectors is not uniform — though they remain substantially the same. Taking this into account as well as the land-labour ratio, one finds that the added value for each worker in Italy is 1/3 less than in Germany, is one-half of that of France and not more than 1/4 of that of Belgium, Luxemburg and the Netherlands (Table 4).

If only males are considered, our relative position does not change much, except vis-à-vis Germany whose agricultural income per head appears to be practically twice ours and almost the same

TABLE 4

AGRICULTURAL PRODUCTION AND ADDED VALUE PER HECTARE AND PER ACTIVE PERSON (1955-1957). AN ESTIMATE AT ITALIAN PRICES

Countries	Agricultural production available for sale per hectare (1)	Added value per hectare (1)	Added value per active person
Belgium-Luxemburg .	2.5	2.1	3.7
France	0.8	0.7	2.0
Germany (F.R.) . .	1.3	1.1	1.3
Italy	1.0	1.0	1.0
Netherlands	2.5	2.2	3.6
E.E.C.	*1.0*	*0.9*	*1.5*

(1) of agricultural land.

as that of France. The per capita productivity resulting from our appraisal does not substantially differ from that of Colin Clark (1).

It is obvious that in order to increase the per capita income of Italian agriculture it is necessary to act on two fronts simultaneously: increase the unit yield and improve the land-labour ratio.

(1) COLIN CLARK, "World Supply and Requirements of Farm Products", in *Journal of the Royal Statistical Society*, Vol. 117, Part III, 1954, p. 263.

PRODUCTIVITY PER MALE ENGAGED IN AGRICULTURE
(Italy = 1)

Countries	1949-52 Colin Clark *	1955-57 Our Estimates **
Belgium-Luxemburg	4.1	3.3
France	2.6	2.2
Germany (R. F.)	3.6	2.1
Italy	1.0	1.0
Netherlands	4.4	3.5

(*) Agriculture and Fisheries.
(**) Approximate elaboration of the data in Table 4.

Clark's figures refer to the working male population, while our figures refer to the total active population. The differences which remain after calculations were adjusted on this

If we consider prices, we find that our agricultural price level is not much higher than that of the other countries. Taking into account the relative importance of different agricultural products in the Community as a whole, the level of our prices in 1956-57 was if not totally equal, only slightly higher than in France and Germany and probably about 10 per cent higher than in the Netherlands and Belgium. However, compared with 1952-53 the differences have been reduced in consequence of trade liberalization (Table 5).

As regards individual products, there was a substantial difference for wheat and to this is due a great part of the difference between our price level and that of other countries. For livestock our prices are not so very different from those of the other members of the Community, while Italian prices for vegetables and fruit are lower.

It is important to remember that in international comparisons of overall levels of agricultural prices, vegetables, fruit and wine are generally not considered. These products represent a large percentage of Italian agricultural output and their prices are extremely competitive.

Thus the low land-labour ratio, in comparison with the other countries of the Community, does not greatly affect the general level of Italian agricultural prices.

point, even though only approximately, are compatible with the differences of relative prices only in a slight degree.

Clark's evaluation, as is well known, is based on International Units, that is in U.S. dollars of the 1925-34 decade.

Relative prices affect the results owing to the diversity of the composition of Italian production, especially vis-à-vis Belgium-Luxemburg, the Netherlands and Germany. We refer particularly to livestock products, whose prices, in terms of wheat, are higher in International Units than Italian prices for the 1956-57 period.

The prices used by Colin Clark make the Italian position look worse. This is because they increase the values of the real product of the three above mentioned countries, in which the contribution of livestock production to the agricultural production available for sale (about 70 per cent, of which more than one third is due to milk) is practically twice the contribution in Italy.

On the other hand, the use of Italian prices, especially since the price of wheat is higher than in other countries, results in an apparent relative improvement of our real product, since wheat is of greater importance in Italy than in other countries. But as far as the above calculations are concerned, the effect is practically negligible.

It is worth noting that the ratios between the 1956-57 Italian prices of wheat, livestock and milk are nearer to the current prices in the other countries than are the ratios of prices in International Units, except in the case of the Netherlands.

The adoption of Italian prices probably worsens the position as regards the Netherlands. Similar limitations would result should the prices of any of the other countries be adopted.

TABLE 5

RELATIVE LEVELS OF AGRICULTURAL PRICES PAID TO FARMERS (*)

Countries	1952-53	1956-57
	Netherlands = 100	
Belgium	114	99
Netherlands	100	100
Germany (F.R.)	113	110
France	128	110
Italy	135	117

(*) For standard basket comprising wheat, potatoes, sugar beet, cattle, pigs, eggs and milk (European weight).

For 1952-53, ECE-FAO, *Output and Expenses of Agriculture in some European Countries, Second Report: 1950-53*, Geneva, 1955.

For 1956-57, BANK FOR INTERNATIONAL SETTLEMENTS, *Twenty-eighth Annual Report*, Basle, June 1958. The comparative levels were calculated on prices reported in: ECE-FAO, *Price of Agricultural Products and Fertilizers, 1956-57*, Geneva, 1957.

4. The low unit yield in Italy is due to a great many factors, among which is the great disequilibrium between grain crops and livestock.

As Serpieri reports, " about 40 years ago Ghino Valenti — after having traced in a masterly manner the evolution of Italian agriculture during the first fifty years of Unification — pointed out two fundamental defects, a great physical disorder and a considerable economic disequilibrium. The first represented by the problem of the hillsides and the lack of water control, and the second resulting from the disequilibrium between excessive grain crops and a deficiency in forage crops for livestock. Today — he wrote — we cultivate 4.7 million hectares to wheat from which we obtain on an average about 50 million quintals; when we limit our cultivation to not more than 3.5 million hectares with a normal yield of 70 million quintals and at the same time raise one-third more livestock, then equilibrium will be established " (2).

Serpieri went on to say: " Much has changed since then but Italy has not known how or has not been able to eliminate the

(2) GHINO VALENTI, " L'Italia agricola dal 1861 al 1911 ", in *Cinquant'anni di Storia Italiana*, Accademia dei Lincei, Hoepli, Milano, 1911, Vol. II, p. 109.

great physical disorder recognised by Valenti, and the economic disequilibrium referred to still exists though in different terms" (3).

A glance at the composition of agricultural output in the countries of the European Community is illuminating in this respect, even bearing in mind the natural importance of arboreal crops in the case of Italy (Table 6).

TABLE 6

PERCENTAGE COMPOSITION OF AGRICULTURAL PRODUCTION (1953 or 1953-54)

Products	Belgium	Luxemburg	France	Germany (F.R.)	Italy	Netherlands
Cereals	7	10	12	10	26	4
Potatoes	5	5	3	6	2	7
Vegetables	9	—	8	2	7	6
Fruit	5	1	3	5	10	4
Wine	—	6	9	2	9	—
Others	9	5	7	5	11	11
Plant Crops	*35*	*27*	*42*	*30*	*66*	*32*
Meat	29	40	36	41	14	32
Eggs	11	4	5	6	6	11
Milk and Milk Products	24	28	17	22	13	25
Others	1	—	—	1	1	1
Animal Products	*65*	*72*	*58*	*70*	*34*	*68*
Total	*100*	*100*	*100*	*100*	*100*	*100*

Source: FAO-ECE, *Output and Expenses*, etc., 1953, *op. cit.*

N. B. - In some cases the sums do not correspond to the totals because they are in round figures.

Irrespective of the European Economic Community treaty we ought to have revised our agricultural production as regards the use of our land resources. The problem has also acquired a particular urgency for other reasons: "economic development" imposes on agriculture the necessity of changes in the distribution of resources.

(3) ARRIGO SERPIERI, "Grano e bestiame", in *Corriere della Sera*, June 20, 1956.

When the income per head increases, demand for foodstuffs augments even though in a lesser measure; but the increase is qualitative rather than quantitative in countries which are already fairly rich, since people choose superior foods while the demand for poorer foods is stagnant or actually declines. Agriculture, therefore, must adjust itself to satisfy changes in demand.

When economic development is very rapid, as has occurred in Italy in the last ten years, the problem becomes acute and must be solved with greater speed. White bread and "pasta", at one time the aspiration of a considerable number of people, are now items of common consumption and with increased income, meat, milk, dairy and horticultural products are now in demand.

5. Let us take a rapid look at the present and prospective market for foodstuffs in the Community.

The total population of the six countries is 164 millions with a relatively high per capita income and a high nutrition level. The daily Italian calorie availability is about 2,600 calories, that of Belgium-Luxemburg and Germany about 3,000 calories and that of France slightly lower (Table 7).

It is worth noting that on the basis of data concerning the three-year period 1954-56, while France and Italy practically cover their food requirements, Belgium and Luxemburg are dependent on imports for about 30 per cent, Federal Germany about 26 per cent; the Netherlands, on the other hand, has an output that exceeds its normal requirements by 13 per cent.

Now let us glance at the principal items of consumption. For example, the yearly consumption of bread grains in terms of flour, which for the other countries of the European Economic Community is about 90-100 kg. per head, is 124 kg. in Italy. But the consumption of potatoes, which is about 150-160 kg. in Belgium-Luxemburg and Germany, decreases to about 135 kg. in France, 107 kg. in the Netherlands and around 50 kg. in Italy.

As regards sugar, compared to the per capita consumption of 41 kg. in the Netherlands, we find it is 27-28 kg. in Belgium-Luxemburg, France and Germany and 17-18 kg. in Italy.

In the case of meat, the differences are still greater, the per capita consumption in France of 77-78 kg. decreasing to 50 kg. in Belgium, Luxemburg and West Germany, to about 40 kg. in the Netherlands and about 20 kg. in Italy. The consumption of cheese

TABLE 7

FOOD CONSUMPTION AND PRODUCTION LEVELS (1955-56)

Products	Belgium-Luxemburg		France		Germany (F.R.)		Italy		Netherlands	
	Consumption (kg. per head per annum)	Production (in % of total availability)	Consumption (kg. per head per annum)	Production (in % of total availability)	Consumption (kg. per head per annum)	Production (in % of total availability)	Consumption (kg. per head per annum)	Production (in % of total availability)	Consumption (kg. per head per annum)	Production (in % of total availability)
Bread grain (as flour)	98.5	61	104.0	126	92.0	77	123.8	93	85.7	45
Coarse grain (as flour)	4.2	46	2.8	94	2.9	73	16.9	95	3.6	39
Rice	1.1	—	1.8	68	1.5	—	6.5	148	2.7	—
Potatoes (+potato flour)	151.0	96	135.4	102	158.0	99	49.0	100	107.0	146
Sugar (refined)	27.6	136	27.6	127	27.4	85	17.1	99	41.2	92
Pulses	1.8	100	3.2	74	1.7	49	6.7	102	2.5	169
Vegetables	65.3	100	143.8	98	48.0	82	93.7	112	66.6	146
Fruit	84.8	80	46.9	64	62.8	50	69.7	129	49.6	87
Meat (carcass weight)	51.3	96	77.6	102	47.4	93	20.2	90	38.4	132
Eggs	14.2	102	11.0	96	10.2	62	7.6	92	8.3	238
Fish	12.0	65	9.4	94	7.4	96	7.0	64	8.1	213
Milk (fluid)	94.8	—	88.7	—	124.9	—	53.2	—	197.6	—
Cheese	5.7	37	7.1	102	6.1	81	6.9	99	6.4	210
Butter (fat equiv.)	9.3	94	5.5	103	5.5	93	1.3	92	2.6	226
Other fats and oils (fat content)	13.0	25	6.3	54	19.3	29	11.2	69	25.3	38
Total fats and oils (fat content)	22.3	47	11.8	75	24.8	43	12.5	71	27.9	51
Three year period 1953/54-1955/56	*100*	*70*	*100*	*98*	*100*	*74*	*100*	*98*	*100*	*113*
Calories	2,990		2,830		2,970		2,560		2,970	

Source: OECE, *Statistiques de l'Agriculture*, etc., 1956, *op. cit.*

is more uniform, being about 6-7 kg. per head in each country. The differences in fats consumption are naturally due in part to different climatic conditions.

As regards vegetables and fruit, which concern us more closely, the consumption levels vary greatly from country to country. In the case of vegetables the 144 kg. per capita consumption in France decreases to 94 kg. in Italy, to 65-67 in Belgium, Luxemburg and

the Netherlands and to 48 kg. in West Germany. As to fruit, against 85 kg. per head in Belgium and Luxemburg, we find 70 kg. in Italy and 47-50 kg. in France, Germany and the Netherlands.

It may appear strange that Italy consumes less fruit than Belgium and Luxemburg and less vegetables than France, but our per capita consumption of fruit and vegetables taken together is about 165 kg. as compared to 190 kg. in France, which is the highest in Europe. Italy exports 12 per cent of its vegetable production and 29 per cent of its fruit production (1955-56).

Some general considerations may be deduced from these data about the components of consumption in each country. It is evident that Italy consumes a large quantity of bread grains, a small quantity of sugar and a still smaller quantity of meat.

Having examined present consumption levels we may ask ourselves what future levels are likely to be (4). The increase in the demand for foodstuffs will depend, above all, on the increase in the income per head, in addition to the increase in population.

The increase in population of the six European Economic Community countries will, according to current demographic studies, be approximately 0.6 per cent per year, about the same as in Italy in recent years.

A recent forecast for Germany (5), which for various reasons may be considered largely indicative for the Community as a whole, suggests that if the increase in income were 3 per cent per year, that is much lower than the figure for recent years, in the decade 1954-55/1964-65 the variation in consumption per head would be: wheat and other bread grains (in percentages) +1, potatoes —7, beef +28, pork +17, eggs +26, sugar +14. Taking into account the yearly increase in population (0.6 per cent), the variation in the total consumption would be as follows: wheat and bread grains (in percentages) +8, potatoes —1, beef +36, pork +25, eggs +34, sugar +21. Vegetables and fruit are not included in these figures and assuming the aforesaid increase in population and in income per head, an increase equal to or even greater than that of meat may

(4) L. GORREUX, "Perspective à long terme de la consommation alimentaire", in *Economie et statistiques agricoles*, FAO, *Monthly Bulletin*, No. 6, 1957.

(5) A. HANAU e H. KROHN, *Die langfristigen Absatzaussichten der westdeutschen Landwirtschaft*, Alfred Strothe Verlag, Hannover, 1956.

be anticipated. In Italy where consumption levels are so low, especially as regards meat, the increases should be even greater.

6. We shall limit our considerations to wheat and meat, neglecting other products such as vegetables and fruit which, although important in relation to income and employment, are grown on a relatively smaller area and concern particular regions.

In the three year period 1953-56 the countries of the Community produced 254 million quintals of bread grains and imported about 60 million quintals, of which 30 were bought by Germany (Table 8).

TABLE 8

PRODUCTION AND IMPORTS OF BREAD GRAINS AND OTHER CEREALS 1954-56

(*thousands of tons*)

Countries	Bread grains (1)			Other cereals		
	production	imports	%	production	imports	%
Belgium-Luxemburg	680	610	89.7	1,046	1,364	130.4
France	8,891	804	9.0	9,939	508	5.1
Germany (F.R.)	7,029	3,041	43.3	5,709	2,122	27.2
Italy	8,489	557	6.6	4,115	510	12.4
Netherlands	352	857	243.5	1,361	1,924	141.4
E.E.C.	*25,441*	*5,869*	*23.1*	*22,170*	*6,428*	29.0

(1) Including spelt and rye.

Source: FAO, *Les produits agricoles et le Marché commun européen*, Monographies des produits, Bulletin No. 29, Rome, 1957.

In the case of wheat, the area sown (1952-55) was 10.6 million hectares, 4.8 million of which in Italy. The total production was 222 million quintals, of which 84 millions were produced in our country (Table 9).

The unit yields of soft wheat are increasing everywhere to the point that there is now a surplus problem in Italy and in France. But our unit yield per hectare is much lower than the average yield of the other countries in the Community, also because of the low

TABLE 9

AREA AND PRODUCTION OF WHEAT

Period	Belgium Luxemburg	France	Germany (F.R.)	Italy	Netherlands	Community
Area: in thousands of hectares						
Pre-War	190	5,224	1,128	5,058	141	11,741
1948-51	173	4,245	968	4,711	91	10,188
1952-55	196	4,390	1,156	4,768	87	10,597
1955 (1)	196 (approx.)	4,554	1,171	4,852	89	10,862
Production: thousands of quintals						
Pre-War	5,010	81,430	25,150	72,460	4,110	188,160
1948-51	5,310	76,330	24,970	71,470	3,240	181,320
1952-55	6,440	95,840	31,850	84,310	3,310	221,750
1955 (1)	7,720	103,650	33,790	95,040	3,500	243,700
Yield per hectare in quintals						(Italy excl.)
Pre-War	26.4	15.6	22.3	14.3	29.1	17.3
1948-51	30.7	18.0	25.8	15.2	35.6	20.1
1952-55	32.9	21.8	27.6	17.7	38.0	23.6
1955 (1)	39.4 (approx.)	22.8	28.9	19.6	39.3	24.7

Source: OECE, *Statistiques de l'Agriculture*, etc., 1956, *op. cit.*

(1) FAO, *Yearbook of Food and Agricultural Statistics*, etc., 1957, *op. cit.*

yield of hard wheat. Disregarding hard wheat, our yield increases from 17.7 to 20.2 qls. per hectare but it is still about 1/5 lower than the average of the other countries.

As regards wheat prices it may be said that the price in the Netherlands corresponds to the international price — the Netherlands production is, however, very small — while the average price in the Community is more or less equal to that of France and Belgium. The Italian price has considerably decreased in recent years (Table 10).

Since the wheat prices of the Community will be higher than the international prices — which are kept down by the surpluses resulting from price support policies — it would be a burden to the wheat-deficient E.E.C. countries to purchase this commodity in the Community area.

TABLE 10

WHEAT PRICES (1956-57)

Countries	In national currencies (per quintal)	In Italian lire (at the official rate of exchange)
Belgium	Frs. 450	5,600
Luxemburg	Frs. 550	7,000
France	Fr.Frs. 3,760	5,564
Germany (F.R.)	D.M. 42.95	6,400
Italy	Lire 6,800–7,300	6,800–7,300
Netherlands	Fl. 26.3	4,340

Source: OECE, *Les politiques agricoles en Europe et en Amérique du Nord*, July 1957. The prices are all government fixed prices, with the exception of the Belgian which is a "prix de direction". Italy's price refers to soft wheat.

As regards meat, the total production of the Community was in 1955-56 about 78 million qls., of which 29 million consisted of beef (Table 11). The six countries of the Community are dependent on outside sources for very small quantities of beef. In 1955 3 per cent of the total consumption was imported; in 1956 the imports increased to 3 million qls., *i.e.* 9 per cent of total consumption.

TABLE 11

MEAT PRODUCTION 1955-56

(*thousands of quintals*) (1)

Countries	Beef and veal	Pig-meat	Lamb and mutton	Other meats and offals	Total
Belgium-Luxemburg	1,940	1,940	260	640	4,780
France	13,800	10,160 (2)	1,160	9,880	35,000
Germany (F.R.)	7,450	13,590	160	1,940	23,140
Italy	4,150	1,810 (3)	420	2,350	8,730
Netherlands	1,950	3,380	590	790	6,710
E.E.C.	*29,290*	*30,880*	*2,590*	*15,600*	*78,360*

(1) Carcass weight.
(2) Including lard.
(3) Excluding fats.

Source: OECE, *Statistiques de l'agriculture*, etc., 1956, *op. cit.*

The development of animal farming in the various countries is well represented by the ratio between the livestock units and the agricultural area (Table 12).

TABLE 12

LIVESTOCK NUMBERS IN THE E.E.C. COUNTRIES

Period	Belgium Luxemburg	France	Germany (F.R.)	Italy	Netherlands
Total livestock units (1) (*in thousands*)					
Pre-war	2,329	21,140	16,068	11,314	3,276
1948-51	2,568	20,348	14,646	12,055	3,175
1948-51	2,949	21,606	15,319	12,410	3,572
Livestock units per hectare of agricultural land					
Pre-war	1.18	0.54	1.10	0.55	1.42
1952-55	1.34	0.52	1.04	0.58	1.35
1952-55	1.56	0.55	1.08	0.60	1.54

(1) Calculated on the basis of the following equivalents, usually adopted in Italy: 1 livestock unit = 1 bovine = 1 horse = 6 pigs = 10 sheep or goats.
These conversion factors are different from those used by FAO and OECE.

Source: OECE, *Statistiques de l'agriculture*, etc., Paris, 1956, *op. cit.*, ISTAT, *Annuario di Statistica Agraria*, Rome, 1957.

7. Looking at Italian agriculture more closely we find that of the 13.2 million hectares of seeded land, cereals are grown on 7 million, *i.e.* 53 per cent of the total area. In northern, central and southern Italy the percentages are respectively: 53, 57 and 55. At first glance it would seem that there are no great differences between the three regions (Table 13).

The differences become greater if from cereals we exclude maize, which is a renovation crop in the rotation and therefore a soil-improving crop. Having made this adjustment, the area to wheat represents 46 per cent of the seeded land: 37 per cent in northern Italy, 43 per cent in central Italy and 49 per cent in southern Italy and the Islands, considerable differences existing between the regions.

In Italy maize is grown on about 1,250,000 hectares. By excluding this crop, the area under cereals drops from 7 million to 5,750,000 hectares, of which 4.9 million to wheat. The area under wheat is

TABLE 13

SEEDED LAND AND AREA UNDER CEREALS IN ITALY

(*thousands of hectares*)

Description	North	Centre	South and Islands	Italy (Total)
Seeded land (1):				
1929	4,587	2,825	5,341	12,753
1938 (2)	4,630	2,856	5,460	12,947
1955	4,589	2,993	5,605	13,187
Cereals (all):				
1929	2,557	1,470	3,124	7,151
1938	2,622	1,467	3,343	7,432
1955	2,419	1,514	3,074	7,012
Cereals (excluding maize):				
1929	1,717	1,207	2,786	5,710
1938	1,735	1,195	2,995	5,925
1955	1,683	1,288	2,784	5,755
Land under cereals as percentage of seeded land				
Cereals (all):				
1929	55.7	52.0	58.5	56.1
1938	56.6	51.4	61.2	57.4
1955	52.7	56.6	54.8	53.1
Cereals (excluding maize):				
1929	37.4	42.7	52.2	44.8
1938	37.5	41.8	54.9	45.8
1955	36.7	43.0	49.7	43.6

(1) Arable land minus land under tree crops.
(2) Data relevant to 1936.
Source: ISTAT.

equal to 37 per cent of the seeded land; this percentage is identical with that of 1929.

In northern Italy 1,423,000 hectares are sown to wheat (31 per cent of the seeded land); in central Italy 1,156,000 hectares (39 per cent) and in southern Italy 2,304,000 hectares (41 per cent) (Table 14).

Looking at two recent years, 1955 and 1956, a good crop year and a poor one, we find that while the national average yield per

TABLE 14

AREA AND PRODUCTION OF WHEAT IN ITALY

Description	North	Centre	South and Islands	Italy (Total)
Area:				
1) thousands of hectares:				
1929	1,379	1,082	2,256	4,717
1938	1,433	1,085	2,513	5,031
1955	1,416	1,148	2,288	4,852
2) percentage of seeded land:				
1929	30.1	38.3	42.3	37.0
1938	30.9	38.0	46.0	38.9
1955	30.9	38.4	41.8	37.0
Production:				
1) thousands of quintals:				
1929	27,102	12,747	26,832	66,681
1938	32,989	15,526	33,313	81,838
1955	45,679	22,952	26,424	95,040
2) quintals per hectare:				
1929	19.7	11.8	11.9	14.1
1938	23.0	14.3	13.3	16.3
1955	32.6	20.0	11.5	19.6

Source: ISTAT.

hectare was 18.7 quintals, the unit yield in northern Italy was 30.7, in central Italy 18.2 (almost the same as the national yield) and in southern Italy 11.5 quintals.

While it is true that these differences may be attributed to various factors, some natural and environmental, it is no less true that the growing of grain tends to give higher unit yields where cultivation is less extensive, a more skilful rotation is employed and it alternates with soil-improving crops.

Comparative data for the years 1929-1955 show that the unit yields have increased from 19.7 quintals to 32 quintals in the north; from 11.8 quintals to 20 quintals in the centre, while they have remained 11-12 quintals in the south. The unchanged unit yields in southern Italy not only refer to hard wheat, for which recent

research seems to have found a means of increasing unit yields, but also to soft wheat whose unit yields are equally low in the region.

It is generally agreed that if the Italian price were to be brought in line with the European average, wheat growing would eventually be limited, in the main, to those areas where the unit yields are not much lower than the European average, *i.e.* about 20-21 quintals per hectare (6).

Italian wheat requirements, allowing for seed, may be estimated at a maximum 86-88 million quintals annually. It will probably remain fairly stable, the increase in population being more or less balanced by the reduction in consumption per head, which is already high.

Our wheat production now covers our national requirements and the rapid increase in yields in northern and central districts has alreay raised a surplus problem for soft wheat. This problem must be carefully studied because the Italian wheat price is much higher than the international one and also considerably higher than the average price of the Community.

If the Italian wheat price were equal to that of the Community and if that were equal to the international price, the need to reduce the area now sown to wheat would only depend on agronomic considerations.

As things stand, it is impossible to consider exports as a safety valve, because by exporting the Government would have to bear the ensuing loss, with serious damage to the national economy and to agriculture itself, in that it would imply the continued wrong distribution of resources. In addition, our agriculture cannot disregard the pronounced tendency towards increased demand for livestock products.

(6) It is believed, however, that this cultivation would survive even in the areas where the unit yield is very low, " only in relation to the persistence of subsistence farming where, because of lack of adequate employment, the peasant is obliged to get his bread from the soil, however poor a living this means and however great the cost ". Bonato, *op. cit.*

It is difficult to think of agricultural exploitation at subsistence level, in the true sense of the word, in an economy which, though backward, is not primitive as in the case of Africa and Asia. However small the influence of prices may be, it is never non-existent. In other words, it is difficult to believe that there is such a close relationship between employment and certain low-yielding income crops; from an agronomic point of view, it is always possible with the same or even greater employment to replace the costly and low productive wheat culture with others less costly, less risky and more in harmony with the requirements of the market.

Ever since the need to reduce the area under wheat has become evident, a substantial consensus of opinion has developed in this regard, though not without some opposition (7).

According to technical experts, in the next decade the wheat area should be reduced by 5-600,000 hectares (8). The area under wheat therefore should be reduced to 4.3-4.4 million hectares, not much below the 4.7 millions which may be considered the average area during the last 50 years. Thus in order to cover the country's requirements, the unit yield, which during the past 3 years has been 18.2 quintals, should increase to 20-21 quintals per hectare. The recent development in unit yields makes it possible to forecast a still higher unit yield. From the four-year period 1946-49 to that of 1953-56 the unit yield has risen from 12.1 to 17.9 quintals, that is to say by about 50 per cent. Even taking into account that half the increase represents a return to the pre-war level, it does not seem beyond the bounds of possibility to reach 23-24 quintals per hectare in 10 years. If these yields are obtained the area necessary for supplying the country's wheat requirements would be between 3.7-3.9 million hectares.

The area under wheat in present conditions should not, in our view, exceed 4 million hectares, which is about 1 million hectares less than the present area, and should decrease still further in the near future. Without a substantial reduction in area and an increase in unit yields, a substantial reduction in cost is not possible.

8. When we examine our livestock situation we see that from 1930 to 1956 development has been very slow, since the 0.39 livestock unit per hectare in 1930 increased to 0.42 in 1956, that is from 1.61 to 1.71 quintals of live weight per hectare for the entire agricultural and forest area (Table 15).

The national meat production which was 7.2 million quintals in 1930 and 8.2 million quintals in 1958, was about 9 million quintals in 1956 and 1957, of which 4.1-4.2 was beef. The per capita consumption, went from 20.7 kg. in 1930 to 19.7 kg. in 1938, to 21.4 kg. in 1956 and 22.1 kg. in 1957 (Table 16).

At present consumption is covered to a large extent by imports of meat and cattle on the hoof. In 1957 imports were more than

(7) Banca d'Italia, *Relazione sull'anno 1955*, Rome, May 1956, pp. 122 f.; Arrigo Serpieri, " Grano e bestiame ", *op. cit.*

(8) Paolo Albertario, " Orientare la produzione agricola ", in *Agricoltura*, May 1957.

TABLE 15

LIVESTOCK UNITS AND APPROXIMATE WEIGHT IN ITALY

Description	North	Centre	South and Islands	Italy (Total)
Livestock units (thousands):				
1930	6,064	1,978	3,044	11,186
1938	6,302	2,024	2,979	11,305
1956 (1)	6,565	2,097	2,987	11,649
Live weight (thousands of quintals):				
1930	26,424	8,707	12,926	46,057
1938	27,475	8,970	10,362	46,807
1956 (2)	28,623	9,290	9,469	47,382
Per 100 hectares of agricultural and forestry area:				
Livestock units (No.):				
1930	53.5	35.9	26.0	39.2
1938	55.6	36.7	25.3	39.5
1956	62.9	37.7	25.4	41.9
Live weight (quintals):				
1930	233.4	158.0	110.4	161.4
1938	242.7	162.8	87.9	164.0
1956	274.1	167.4	80.4	170.6

Source: ISTAT, *Annuario Statistico dell'Agricoltura Italiana*, 1943-46, p. 98.

(1) CONFEDERAZIONE NAZIONALE DEI COLTIVATORI DIRETTI, *Agricoltura italiana in cifre*, 1956-57, Table 77. An elaboration of the ISTAT data with the same criteria used by ISTAT for 1930 and 1938.

(2) Our calculation on the average weights estimated by ISTAT for 1938.

1.8 million quintals, equal to one fifth of home production. As regards beef, which represents about one half of the total consumption, imports in 1957 were equal to about 1/3 of home production. Probably in 1958 total imports of meat will amount to 2.1-2.2 million quintals, an increase of one fifth over that of 1957.

It is worth noting that in the period 1950-1957, during which the national income increased by 5 per cent per year and income per head by a little more than 4 per cent per year, meat consumption increased by 47.7 per cent and that of beef by 68.4 per cent as compared with increases in production of 30 and 41.3 per cent

TABLE 16

MEAT PRODUCTION, IMPORTS AND CONSUMPTION IN ITALY

(thousands of quintals)

Years	Production		Net imports		Consumption			
					Total		Per head	
	All meat (1)	Beef (2)	All meat (3)	Beef (4)	All kinds	Beef	All kinds	Beef
1930	7,187	2,462	1,307	1,244	8,494	3,076	20.7	9.1
1938	8,248	3,347	367	366	8,615	3,713	19.7	8.5
1950	6,814	2,888	417	295	7,231	3,183	15.6	6.9
1951	6,419	2,641	756	565	7,155	3,206	15.4	6.9
1952	7,412	2,907	792	567	8,204	3,474	17.4	7.4
1953	7,951	3,500	640	421	8,591	3,921	18.2	8.3
1954	8,215	3,964	646	391	8,861	4,355	18.6	9.1
1955	8,198	3,911	1,199	719	9,397	4,630	19.6	9.6
1956	9,016	4,160	1,287	869	10,303	5,029	21.4	10.4
1957 (provisional)	8,859	4,082	1,822	1,277	10,682	5,359	22.1	11.1

(1) and (3) Including offals excluding hog fat.
(2) and (4) Excluding offals.
Source: ISTAT.

respectively, so that in order to satisfy demand total imports had to be more than quadrupled. If income per head should increase yearly at the rate of 3-4 per cent, the total meat consumption, allowing for the increase in population, would rise in a period of ten years by more than 40 per cent, while that of beef alone would increase still more. Total meat consumption would rise, roughly, from 10.7 million quintals in 1957 to more than 15 million. The problem that we are considering is clearly very different from that of self-sufficiency. But without wishing to give rise to any misunderstandings we must ask ourselves if agriculture will be in a position to satisfy this increased demand.

We must emphasize that a ten-year period — such as is considered above — is not long enough in this field, especially having regard to the fact that the present situation has its roots so far back in the past. Secondly, it must be noted that an increase of 1 million hectares in the area under forage crops, in conjunction with the increased raising of pigs, poultry and other animals, which is less connected with forage production, and an increased yield in forage

crops themselves, would only serve to maintain imports at a level not very different from the present figure. On the other hand assuming an average yearly increase in production equal to 2 per cent, meat imports would rise to over 4 million quintals per annum, a volume more or less equal to the country's present beef production.

The Common Market could offer Italy great possibilities as regards vegetables, fruit, industrial crops, and flowers. Nevertheless, having regard to the tendency towards specialized cultivation, technical progress and extension of irrigation, it seems unlikely that such products taken altogether will require an expansion in area great enough to affect the broad distribution of our land resources. We have also to remember that the reclamation from waste land or from extensive utilization, is to be added to the areas which will become available when the area under wheat has been reduced. It is sufficient to note that since pre-war days the area to these crops (exclusive of potatoes) has risen from 0.9 to 1.2 million hectares, while total production has probably doubled.

The expansion of forage crops undoubtedly presents more difficulties, as they require technical skills and capital which some, at least, of the above crops certainly do not need. The increase in animal husbandry through expanding forage crops involves a capital investment not only in animals but also in buildings, shelters, silos, machinery and so forth. If things had gone differently this capital would have been spontaneously built up, little by little. The need now is for very considerable investments, on a scale, however, that does not exceed possibilities, taking into account the large investments now being made in agriculture for different but nevertheless not more productive purposes than those in question.

The total capital employed in animal husbandry in 1957 was about 1,500 milliard lire (9); in the same year the value of livestock production was 1,095 milliards, so that the capital-gross output ratio was 1.4 to 1.

Assuming that the "expenses" in the agricultural sector are shared — this is, of course, an over-simplification — proportionately to the values of production of the individual sectors, the net product of the animal sectors would be about 830 milliard lire. On the other hand, by increasing investments in cattle by 1/3 in order to take account, even if only approximately, of related investments, the total

(9) I.N.E.A., *Annuario dell'agricoltura italiana*, Vol. XII, Roma, 1957, p. 310.

investment would increase to about 2,000 milliard lire, the capital-net output ratio being 2.4 to 1. It is a very low ratio, perhaps lower than the relative one in many industrial activities and certainly much lower than in agriculture as a whole, which is 6 to 1 (capital invested in agriculture being valued at 14,400 milliard lire and net product at 2,400 milliards).

Therefore capital invested in cattle rearing has a very much higher productivity than that of other agricultural investments, perhaps equal to capital investment in the most productive industrial sectors.

Further, we may say that in a strictly agricultural sense, even neglecting the value of animal labour (despite the development of mechanization, more than one half of the draught-power used in agriculture is still supplied by animals), animal husbandry not only returns in meat or milk the value of the assimilated fodder, but through a greater availability of barnyard manure makes it possible to increase the productivity of all crops, cereals, vegetables, fruit, or industrial and, finally, augments the productive capacity of the soil.

9. Although there is a widely-held, and on the whole well-founded opinion, that there exists a close relationship between unit yields of wheat and of forage crops, the range of variation in the former is much greater than in the latter (Table 17).

The ratio between the two is far from stable and tends to vary considerably. In areas where the unit yields of wheat are lower than 20 qls. the ratio between unit yields of forage crops and unit yields of wheat becomes decidedly favourable to forage crops (Table 18).

In the years 1954 and 1955 (a bad crop year and a good crop year) during which the average unit yield of wheat was 17.45 qls. per hectare, the average yield of forage crops, in terms of hay, was 47.65 qls. per hectare, the ratio between unit yields of wheat and unit yields of forage being 1 to 2.73. In these conditions and assuming 7,200 lire per ql. as the average price of wheat (which in effect was the current price until a short time ago), the comparative cost of hay in terms of wheat, in relation to land, is 2,635 lire per quintal (10).

(10) It is neither a true cost nor a true price, which would seem to be and would be rather high, but a ratio between the products of alternative use of the soil.

AREA AND PRODUCTION OF WHEAT AND TEMPORARY GRASS BY TYPICAL ZONES

TABLE 17

Typical zones	Wheat						Temporary grass (1)					
	1954			1955			1954			1955		
	Area	Production		Area	Production		Area	Production		Area	Production	
		Total	Per hectare		Total	Per hectare		Total	Per hectare		Total	Per hectare
	thousands of hectares	thousands of quintals	quintals	thousands of hectares	thousands of quintals	quintals	thousands of hectares	thousands of quintals	quintals	thousands of hectares	thousands of quintals	quintals
I - Alpine mountains	37	673	18.2	36	764	21.1	69	3,552	51.5	70	3,508	49.8
II - Alpine foothills (family farms)	497	10,388	20.9	512	14,807	28.9	715	40,231	56.3	711	40,193	56.6
III - Capitalistic intensively farmed zones	297	7,592	25.6	335	11,704	35.0	793	52,531	66.2	810	55,292	68.2
IV - Recently reclaimed zones in the lower Po	212	6,298	29.7	222	9,238	41.6	215	15,409	71.7	222	15,302	68.9
V - Zones farmed mainly under *métayer*	1,324	22,274	16.8	1,328	30,395	22.9	1,747	72,510	41.5	1,761	67,300	38.2
VI - Capitalistic extensively farmed zones	319	4,709	14.8	324	5,438	16.8	203	9,470	46.7	230	10,433	45.5
VII - Peasant latifundia zones	1,012	10,709	10.6	1,055	11,805	11.2	266	7,769	29.2	273	8,321	30.5
VIII - Mixed peasant farming zones in the South	538	4,998	9.3	545	5,624	10.3	231	6,137	26.6	238	6,773	28.5
IX - Intensively farmed zones in the South	533	5,188	9.7	495	5,265	10.6	278	9,277	33.4	282	10,193	36.0
Total	*4,769*	*72,829*	*15.3*	*4,852*	*95,040*	*19.6*	*4,517*	*216,886*	*48.0*	*4,598*	*217,315*	*47.3*

Source: INEA, *Annuario dell'Agricoltura Italiana*, 1957, Rome, 1958, pp. 52 and 70. Compiled from data of the Central Institute of Statistics.

(1) Forage crops in rotation (rotation meadows, annual and catch fodder crops). Production is expressed in terms of good normal dry hay on the basis of the nutritive value of the individual types of forage.

Taking an average price of live cattle of 350 lire per kilo, which has been the current price, then a kilo of meat equals 13.3 kilos of hay. That is to say, were 13.3 kilos of normal hay sufficient to produce one kilo of meat in terms of live weight, there would be parity of gross production per hectare between grain and meat.

TABLE 18

RATIO BETWEEN UNIT YIELDS OF WHEAT AND UNIT YIELDS OF TEMPORARY GRASS

(average for the years 1954 and 1955)

Typical zone	Yields per hectare		Ratio
	Wheat (quintals)	Temporary grass (quintals) (1)	
I - Alpine mountains	19.65	50.65	2.58
II - Alpine foothills (family farms)	24.90	56.45	2.27
III - Capitalistic intensively farmed zones	30.30	67.20	2.22
IV - Recently reclaimed zones in the lower Po	35.65	70.30	1.97
V - Zones farmed mainly under *métayer*	19.85	39.85	2.01
VI - Capitalistic extensive farmed zones	15.80	46.10	2.92
VII - Peasant latifundia zones	10.90	29.85	2.74
VIII - Mixed peasant farming zones in the South	9.80	27.55	2.81
IX - Intensively farmed zones in the South	10.15	35.20	3.47
Italy	*17.45*	*47.65*	*2.73*

(1) Rotation forage crops. Yields are expressed in terms of good normal dry hay.

If we consider the net product, we find forage crops to be more advantageous. An analytical calculation would be so complicated as to seem hypothetical. It can, however, be said that though livestock raising needs a larger investment of capital, for fodder crops, either annual and catch crops or rotation meadows (which remain in the ground for several years), the expenses reach a maximum figure of about 20,000 lire per hectare; whereas for wheat, even after allowing for the value of straw, expenses average more than double (11).

(11) If in the very near future, as seems inevitable, the price of wheat is stabilised around 6,000 lire per quintal, the price of meat remaining constant, the advantage of cattle raising will be increased.

We need not at this point make any judgment on the sufficiency of the aforesaid quantity of normal hay to produce one kilo of live weight of meat. (We should also have to take into account the residues from other crops — the production of secondary fodder is equal to a quarter of forage crops in rotation — and even the concentrated feeds). But it is a fact that precisely in the areas where the unit yields of wheat are highest, both absolutely and relatively, the livestock units per hectare and the livestock production per hectare are greatest.

If we examine individually the central-northern areas where the unit yields of wheat are higher (about 20 qls. per hectare or more) and the southern areas where the unit yields are much lower, the ratio between the unit yields of wheat and the unit yields of forage crops decreases from 1 to 2.73, which is the ratio for the country as a whole, to 1 to 2.17 for the central-northern areas and increases to 1 to 3.06 for the southern.

Examining the individual southern areas, we find ratios of 1:2.74, 1:2.81, 1:2.92 and 1:3.47. The most favourable ratio as regards forage crops is 1 to 3.47, which is found in the southern areas under intensive agriculture, and the least favourable, 1 to 1.97, in the areas which have recently been reclaimed in the lower Po (12).

For the central-northern zones, taking the prices of soft wheat at 7,000 lire per quintal, the comparative price of hay is 3,226 lire per quintal; taking the price of wheat at 7,800 lire per quintal (the weighted average of soft and hard wheat), for the southern areas the comparative price of hay is 2,549 lire per quintal (13).

Gross production per hectare of meat compared with wheat — the price of meat being taken as 350 lire per kilo of live weight — can be expressed as 10.8 kg. of hay for the central-northern zones and 13.7 kg. for the southern (Table 19). In other words, to produce a kilo of live weight — on a parity with wheat — the southern farmer has available a fourth more hay than the farmer in the

(12) For the sake of accuracy we can express hard wheat yields in terms of soft wheat, on the basis of prices, so as to make che unit yields homogeneous as regards quality. The ratio between unit yields of wheat and unit yields of forage crops then increases from 1:2.17 to 1:2.33 in the north-central zones and drops from 1:3.06 to 1:2.82 for the southern zones. (Hard wheat is almost entirely produced in southern Italy and in the Islands).

(13) I.N.E.A., *Annuario dell'agricoltura italiana*, Vol. XI, Roma, 1958, Appendix II, Cap. VIII, "Produzione lorda vendibile per regioni nel 1957", pp. 76 f.

central-northern areas. It should be noted that the forage crops of southern Italy and in general those produced in warm and arid climates have a higher nutritive value.

TABLE 19

COST OF HAY IN TERMS OF WHEAT AND PARITY OF THE GROSS PRODUCTION PER HECTARE BETWEEN WHEAT AND MEAT

Typical zones	Price of wheat	Value of gross production of wheat	Cost of dry hay in terms of wheat	Parity between wheat and meat
	L. per ql. (1)	L. per Ha. (2)	L. per ql.	Kg. dry hay (3)
I - Alpine mountains	7,000	137,550	2,716	12.9
II - Alpine foothills (family farms)	7,000	174,300	3,088	11.3
III - Capitalistic intensively farmed zones	7,000	212,100	3,156	11.1
IV - Recently reclaimed zones in the lower Po	7,000	249,550	3,550	9.9
V - Zones farmed mainly under *métayer*	7,000	138,950	3,487	10.0
VI - Capitalistic extensively farmed zones	7,800	123,240	2,673	13.1
VII - Peasant latifundia zones	7,800	85,020	2,848	12.3
VIII - Mixed peasant farming zones in the South	7,800	76,440	2,775	12.6
IX - Intensively farmed zones in the South	7,800	79,170	2,249	15.6
Zones from I to V	7,000	166,040	3,226	10.8
Zones from VI to IX	7,800	86,977	2,549	13.7

(1) Zones I to V price of soft wheat; VI and following zones, the average weighted price of soft and hard wheat.
(2) Including wheat used as seed.
(3) Equivalence of value of gross production based on the meat price of L. 350 for a kilo of live weight.

We wonder whether in the areas which have been for such a long time under wheat and could be called exhausted, it would not be possible through the extension of improving forage crops to secure an increase in the unit yield of wheat.

Such an improvement in the cropping pattern would increase the level of production and income in vast areas which are at present principally under wheat, with decided and widespread economic improvement to the whole of the South. Moreover, since wheat

production is subject to far greater year-to-year variations in unit yields than are forage crops, there would be a considerable reduction in the annual variability of agricultural income. This greater stability would not be confined to agriculture; the income of the whole area would be less exposed to a casual factor like weather.

This possibility, despite the great variety of opinions held on the subject, could become a reality, since there are no strictly agricultural reasons to hinder it. The substantial difference between northern and southern Italy from an agricultural point of view is that the season of vegetative stasis falls in winter in the North and in summer in the South.

With present technical knowledge and experience in the conservation of fodder, despite the low and badly distributed rain-fall, and since wheat itself grows and produces, progress in this field is far from impossible in the South.

10. The extension of wheat culture and the scanty forage crops and livestock raising in Southern Italy and in the Islands are not justified, in general, by agricultural reasons. It would seem that they are due to a kind of obsolescence in agricultural methods and cropping patterns, if one did not also find counter-operating factors such as to annul the advantages which comparative yields make evident. In our view the explanation can be found in a number of causes operating together, principally: (1) lack of technical knowledge at the farm-operative level; (2) scarcity of capital; (3) motives concerned with the price of wheat; (4) market risks.

As regards price, we have already pointed out that the high price of wheat led to increasing cultivation, made it more extensive and finally resulted in maximization of rent rather than of product per hectare. The raising of the marginal productivity of land compared with other contributing factors has affected more extensively and more profoundly the backward and poorer areas, where the marginal productivity of land was already high. This explains the absence of the gradual formation of the necessary personal and real capital.

Public investment and related private investment and the limited introduction of new technical methods, have opposed this tendency, but in insufficient measure. It may be assumed that the rising of the marginal productivity of the factors cooperating with the land has been, in wide areas and on the whole, decidedly small. Moreover

it cannot be excluded *a priori* that the behaviour of the small owner-farmer (particularly in certain cases, when his land is too small or when there are opportunities of outside work, even if only casually) is, if not the same, at least similar to that of latifundia owners, *i.e. to maximize rent.* And this for several reasons — lack of technical knowledge, scarcity of capital and so forth.

The other reasons concern market risks, which for wheat have been reduced to the minimum. The wheat policy has given great stability to wheat prices: for many years prices have been known practically in advance. In addition, through the government purchasing scheme sales and receipts have been, until recently and in large part, prompt and reliable.

Livestock products have certainly not enjoyed such privileged conditions. It is no exaggeration to assume that market risks may have been of decisive importance in determining the choices made, particularly in the poorer areas.

11. Italian agriculture is confronted with many problems. The obstacles preventing the optimum use of the land are very great and not easy to remove, though this is not impossible.

If adherence to the European Common Market could offer the opportunity of removing these obstacles and at the same time reduce the imperfections of the market for industrial products, the positive results would be of great importance not only for agriculture but for the entire national economy.

The conclusions are implicit in what has been said above. From them we can deduce some unquestionable precepts: first, do not aggravate the scarcity of land; second, try to reduce it.

Therefore we must:

(1) insist on technical skill, that is on personal capital formation at the operative level;

(2) encourage more efficient cropping patterns by increasing forage crops and livestock, because in this way the scarcity of the land is reduced;

(3) encourage a greater application of fertilizers, the use of which is too low, both absolutely and relatively, compared with countries having more land;

(4) encourage the increase in the capital-land ratio, particularly the agricultural working capital-land ratio;

(5) encourage a natural and spontaneous raising in the land-labour ratio.

This is not a priority list but suggests parallel lines of action. It is a question of adapting the working of the fundamental variables through optimum use of the scarce factors.

In order to decide on practical measures we must bear in mind the existing conditions, not only in agriculture but in the entire economy. We assume these conditions are well known and merely state that:

(a) Agricultural income per head is losing ground in relation to that of other sectors, despite the fact that in recent years, taking into account increased production and the exodus from the countryside, the total output per person engaged in agriculture has increased by something like 4 per cent per year;

(b) The "terms of trade" between agriculture and the rest of the economy is unfavourable to agriculture and tends to worsen. There are, however, no price indexes which would give the exact extent of the phenomenon; the indexes of prices received and paid by farmers are not adequate for this purpose (14).

Agriculture operates under highly competitive conditions so that any increase in productivity is spread through the market. In industry, because of imperfections in markets, there exists the tendency to distribute the advantages of rising productivity mainly through higher incomes rather than through prices (15).

The abolition of certain protective measures would imply the elimination of a compensatory factor for agriculture. This does not mean that artificial and costly price supports, such as the one for wheat, should not be abolished. In general, the repeal of price supports does not mean that prices should not be watched or that one

---

(14) The same remark is valid for wholesale price indexes. Wholesale price indexes of agricultural products are certainly representative, but those of non-agricultural commodities are not equally so, particularly in the case of finished goods.

The "terms of trade" between agriculture and the rest of the economy can be best followed through the cost of living index, adjusted for this purpose.

Farmers' consumption of home produced food is not more than one-fourth of agricultural production, so that at least one third of the food consumption of the rural population is bought on the market. Making an adjustment on this basis and eliminating house rent, the index could serve, together with indexes of prices received and paid, as a broad indication.

(15) Paolo Sylos Labini, *Oligopolio e progresso tecnico*, Giuffrè, Milano, 1957, pp. 127 f.

should not try, in particular cases, to reduce excessive fluctuations which are misleading to producers. This task could be entrusted to associations of producers, the State encouraging and fostering all such activity.

The achievement of the necessary degree of flexibility is not in practice incompatible with a satisfactory degree of stability, taking into consideration the excessive price fluctuation (16).

Other circumstances concerning the overall economy, which we have not mentioned as we presumed them to be well known,imply that the mere renouncing of any kind of price support would entail a wide range of disturbing effects. We shall touch upon a few very briefly:

Inevitably the agricultural sector would tend to turn in on itself and to limit its recourse to the non-agricultural sector (services and goods bought from this sector are the most variable of the inputs, but they also have the highest marginal productivity), with detrimental effects to the relationship between agriculture and the rest of the economy, which cannot be overlooked when aiming at a better integration between the two sectors and a general economic expansion.

An increase in the existing inter-sector transfers of labour would tend to counteract the tendency we have just mentioned, but with difficulty and in any case with a certain delay. If these transfers did not increase sufficiently as to counteract this tendency, it would continue even if in a less accentuated form; if the transfers increased sufficiently, after a certain period of time a manpower glut might result elsewhere. It may be observed that the exodus from the rural areas depends also on other factors, among which is the so-called " city mirage " and a psychological attitude which gives agricultural work a very low social standing, etc. But these are additional reasons.

In a very stimulating essay on the " dual " nature of the Italian economy it has recently been stated that the high level of wages in industry — except in the very small operating units — would, because of the imperfect market conditions, constitute, the independent variable of the system (17).

(16) On this point see: E. M. Ojala, *Agriculture and Economic Progress*, Oxford University Press, G. Cumberlege, London, 1952, paragraph XI, pp. 177 etc.

(17) V. C. Lutz, " The Growth Process in a 'Dual' Economie System ", in this Review, September, 1958.

Apart from this, we are of the opinion that there are sufficient reasons for thinking that under present conditions a larger exodus from the rural areas would have little possibility of increasing *tout court* employment in industry on an adequate scale. At least it would be a question of bearing transfer costs in advance, and therefore greater than necessary, both on the real and the psychological level.

The available data concerning employment are too incomplete to show precisely which sectors have absorbed labour in recent years. There has undoubtedly been a certain increase of employment in non agricultural occupations: on the basis of available data, both direct and indirect, this increase can be estimated at more than 1,600,000 persons between 1952 and 1957 (18). Judging from the data on employment, it would seem that at least one-half of the increase occurred in the tertiary sector. There is even greater reason to believe that a large number of persons leaving agriculture — 7% of the active population since 1951 — have been obliged to seek entry in this sector; with the exception of young people in their first job (which are not included in the above percentage), even if it is presumed that some branches of industry, such as the building industry, have absorbed a considerable number of former agricultural workers (19).

Increases in employment in the tertiary sectors generally imply an increase in the *real* national product; but not necessarily, nor necessarily this increase is *at least* in the same proportion (20).

The truth is that a high level of employment in tertiary sectors is not necessarily associated with a high level of economic wealth; paradoxical as this may sound it may be a common aspect of both rich and poor communities (21).

(18) See the figures on the increase of non agricultural employment supplied annually by the *Relazione Generale sulla situazione economica del Paese*.

(19) Vera C. Lutz, " Some Characteristics of Italian Economic Development, 1950-55 ", in this Review, December 1956.

(20) The Vanoni Plan gives great importance to the tertiary sectors as regards the achievement of full employment. Manpower in primary and secondary production taken together would decrease, between 1954 and 1964, from 70 to 66 per cent of the total, while employment in tertiary production would increase from 30 to 34 per cent. See: CIR, *Lineamenti del programma e del reddito in Italia*, Istituto Poligrafico dello Stato, Roma, 1956 pp. 53-54.

(21) In progressive countries Colin Clark found through time a shift of employments from primary to secondary production and particularly in the later stages towards tertiary production. Colin Clark, *The Condition of Economic Progress*, Macmillan, London, 1940, Chap. V, pp. 176 f.; II edition, 1951, Chap. IX, pp. 395 f.; III edition, 1957, Chap. IX, pp. 490 f.

We have had the opportunity of observing in certain small communities in the far East that many people live by selling the most varied services with the ultimate effect of redistributing, not much more than a handful of rice per head. There is no need, however, to go so far to find an example: it is sufficient to recall the situation of our own country at the end of the last war.

It is highly probable that the final effect of the abolition of price supports may be no permanent reduction in the cost of living; the cost of living might even increase, making it more difficult to achieve an adequate expansion of employment in industry.

The cost of living is very sensitive in the short run to retail prices of foodstuffs; these are affected differently by changes up or down in agricultural prices due to year-to-year harvest variations; but in the long run the cost of living is influenced by other factors besides those represented by agricultural costs.

According to the Vanoni Plan, in 1954 non farm services added to farm products used for food represented 40 per cent of retail food prices (22).

If we consider only that part of agricultural production which constitutes farm services, we can say that the cost of these services, as far as food is concerned, is actually less than that of the non-farm services " incorporated in " and " added to " the farm products (23).

(22) G. Orlando, " Intorno allo schema di sviluppo ", etc., *op. cit.*, pp. 117 f.

In 1964 the non-farm services, added to farm products, would be 47 per cent of the retail value of food.

Taking account of foreign trade, non-farm services attached to farm-products entering into food, which in 1954 was 41.6 per cent, in 1964 is expected to be 49.0 per cent.

The Plan foresees for the decade the following developments: value of food production, at farm level +18.2 per cent; non-farm services added +59,5 per cent; value of food consumption, at retail +35.4 per cent.

The increase in income available for spending is 50 per cent, so that — taking into consideration the effect of the increase in population which would be 5 per cent in 10 years, the income elasticity for food is 0.678 per cent. This figure seems plausible. It is due to the combined effect of an elasticity of 0.294 per cent for food at farm level and of 1.210 per cent for non-farm services. The elasticity of these services appears out of proportion, even considering that the food consumed on the farms where it is produced is influenced by negative " population effect " and that the relative income elasticity tends to decrease rapidly (see the note 20).

For this argument: T. Schultz, *The Economic Organization of Agriculture*, McGraw-Hill, New York, 1953, Part I, V, pp. 44 f.

(23) In 1957 the farm net national product at factor costs (farm productive services are paid at factor costs) was 2,409 milliard lire while National Income was 13,478 milliard lire. It can therefore be deduced that the cost of farm productive services was about 18 per cent of the national income. Taking into consideration the non-food part of agricultural production

Therefore, certain tendencies which are positive and desirable from a theoretical point of view, such as the exodus from rural areas and the expansion of tertiary sectors, in practice are not equally so, quite independently of the ways in which and the times at which they may occur.

12. For many reasons the necessary compensations must be found elsewhere. First of all, taxation in the agricultural sector must be adjusted to the low contributory capacity; secondly, social security contributions must be revised so that the social costs of the agricultural sector should in considerable part be borne by the entire community; lastly, subsidies are essential. The cost of fertilizers, for example, should be partly borne by the government. In addition the time has arrived to study an efficient plan of production subsidies, taking care that it is selective in regard to products and avoiding any discrimination which would result in particular subprotection and might constitute a serious obstacle to the optimum use of land. Taxation and social charges should be used alternatively or conjointly, as substitutive instruments.

Measures of this kind, wisely considered and more wisely devised, would help, within possible limits, in overcoming the dichotomy (24) of the Italian economic system, at the same time maximizing employment and the rate of economic growth.

Aldo and Almo Pennacchietti (*)

Rome, March 1959

the percentage decreases to less than 17 per cent. Total domestic expenditure for food consumption, including beverages (wine), represented 40 per cent of the national income equal to 5,457 milliard lire. As imports and exports of food products have been almost balanced, it can be seen that the farm produced part of food represented less than one half of the total domestic expenditure on foods. The difference is made up by the productive services bought by agriculture from non-agricultural sectors and incorporated in the products at farm, by processing services, by transportation and distribution, by public services and other services of a complex nature.

(24) On the subject see: Vera C. Lutz, " The Economic Growth etc. ", *op. cit.*

(*) The Pennacchietti brothers, the first a technician, the second an economist, jointly present this study.