Scientific Papers Series Management , Economic Engineering in Agriculture and Rural Development
Vol. 13, Issue 2, 2013
PRINT ISSN 2284-7995, E-ISSN 2285-3952

BARLEY BALANCE SHEET IN ROMANIA

Dragoş Mihai MEDELETE[1], Radu Lucian PÂNZARU[1]

[1]University of Craiova, Faculty of Agriculture and Horticulture,
19 Libertăţii, 200421, Craiova, Romania, Phone: +40 741 180 976,
Fax: + 40 251 418 475 , E-mail : medelete @yahoo.com, rlp1967craiova@yahoo.com

Corresponding author: medelete @yahoo.com

Abstract

Barley is one of the most important cereal grown in Romania, after corn and wheat. This is based, at least on considerations of cultivated area (413.4 thousand ha - average 2007-2009), but also because of the multiple uses it may have (Food, feed, industrial raw materials, etc.). Presentation of food balance we consider interesting in terms of supply and demand components: production, imports, stocks, exports, seeds, feed consumption, industrial raw materials, food and other useslosses. On the basis of total volume of supply and demand we could determine the balance sheet at nationa level for the product.

Key words**:** *barley, consumption, demand, export, import, losses storage, supply*

INTRODUCTION

Barley have importance as forage, in industry and in agrotechnics [1]. Is emphasized the importance of modalities under which barley forage can be used in animal feed (green mass, concentrated fodder, straw and chaff). In terms of industrial as raw material it is used for brewing and alcohol. In feeding barley can be used in the form of coffee substitute or pearl barley. Also, barley flour mixed with wheat that can be used in baking industry. Use barley straw-like materials, pulp and paper industry. Barley has as best preceding almost all crops, except those harvested late fall and does not allow due to the vegetation period, adequate preparation of land and sowing in the optimum time.

Barley capitalize at high level the factors of production: seed, chemical fertilizers, residual effect of manure, substances control, irrigation water, etc. Since leaving the ground early, barley allows the installation of the second crops, especially forage plants, in which they achieve lower production costs for crops.

MATERIALS AND METHODS

Carrying out the work involved documenting, through the use of statistical reporting data [4]. In order to achieve the work was operated with a system of indicators, specific for the balance sheet of agricultural products and recommended, system used by the United Nations Food and Agriculture Organization - FAO.

Offer for an 'X' product is represented by quantity that producers are willing to produce at a cost "K", given the profit you will get [3].

Formation of total supply has the following components: total production, imports, stocks and exports (expressed in natural units of measurement - thousand tons). Determining the level of total supply - according to FAO regulations, is considering adding the level of production with level of imports and stocks, minus exports. If the stock is negative, it is subtracted from the sum of total production and imports.

Food demand can be expressed in many forms [2]:

- through the total value of food necessary to meet the food of the studied population (using natural units and / or energy);
- Quantification of components of assortment of the food demand by indicating needs of each group assortment for periods; - Equivalence through converting appropriate indicators, the need for food production and distribution potentials (taking into account the capacities of production and consumption,

seasonal factors influencing consumer income possibilities through matching storage rings etc.).

To establish the total demand is considering its following components: food consumption, seeds, food consumption, raw materials, other uses, losses (in thousand tons). According to FAO methodology, determining the overall level of demand is by the sum of the above.

Establishing effectively balance is done as the difference between total supply and total demand. Depending on the values of total demand and total supply balance sheet may be surplus or deficit or encounter a situation of balance between the two constituent elements (respectively total supply and total demand).

In case total supply and total demand, taking into consideration their components and their participation in setting the general level of these two indicators has been established percentage structure, distinctive for both total supply and the total demand.

Subsequent was performed processing of the data by using comparison method in time. The data collected and analyzed, covers the period 2007-2009, are launched with the average period. Media was determined by computing the following equation:

$$A = \frac{X_1 + X_2 + \ldots + X_n}{n}$$

Based on the above, the dynamic series were built, where the first term automatically became a basis for comparison. We used two types of indices with fixed base and mobile base for which the methodology of determination was as follows:

$$Fbi = \frac{X_n}{X_0} x100;$$

$$Mbi = \frac{X_n}{X_{n-1}} x100.$$

RESULTS AND DISCUSSIONS

Table 1. presents the national balance sheet components of barley. For 2007 we can see that the balance was positive, demand exceeded supply by 0.2 thousand tons.

Thus there was a total supply of 971.9 thousand tons of barley, which is based on the offer: 531.5 thousand t production (54.6%), 269.8 thousand t imports (27.8%), 311.0 thousand t stocks (32.0%), 140.4 thousand t exports (-14.4%). When setting total demand of 971.7 thousand t were helped with food consumption - 307.9 thousand t (31.7%), raw materials - 421.4 thousand t (44.4%), losses - 121.8 thousand t (12.5%), seeds - 83.5 thousand t (8.6%), food - 36.1 thousand t (3.7%), other uses - 1.0 thousand tons (0.1%).

In 2008 the total supply was 1241.0 thousand tons, a level at which components had the following percentages of participation: 97.5% production (1209.4 thousand tons), 34.4% imports (426.6 thousand tons), 20.1% stocks (250.0 thousand tons), exports -52.0% (645.0 thousand tons). Total demand was 1240.9 thousand tons, presenting this one as the following components: 0.7% other uses (9.0 thousand tons), food 4.2% (52.0 thousand tons), 4.3% loss (53.3 thousand t), 7.3% seeds (90.6 thousand t), 35.1% of raw materials (435.7 thousand t), food consumption 48.4% (600.3 thousand t). Result of this situation balance sheet is in surplus - 0.1 thousand t.

For 2009 is maintain the balance surplus (0.1 thousand t), the offer being 907.1 thousand tons, and the demand for 907.0 thousand tons. For total supply acted up: production - 1182.1 thousand tons (130.3%), import - 218.5 thousand tons (24.1%), stocks - 50.0 thousand tons (5.5%) and exports - 543.5 thousand tons (-59.9%). Formation of barley total demand is based on the, variable amounts of barley used in a number of areas such as: 382.9 thousand t of raw materials - 42.2%, 218.7 thousand t feed consumption - 24.1%, 149 , 2 thousand t loss - 16.5%, 119.0 thousand tons of seeds - 13.1%, 35.7 thousand tons of food - 3.9%, 1.5 thousand tons other uses - 0.2%.

Determining the average period, it is found a balance sheet in surplus of barley (0.1 thousand t - fig. 1.). This offer is based on a total of 1040.0 thousand tons, which had the following structure (Fig. 2.):

• 93.7% production (974.3 thousand t);

• imports 29.3% (305.0 thousand tons);
• 19.6% stocks (203.7 thousand t);
• exports -42.6% (443.0 thousand tons).

Table 1. Barley: national-sheet structure in thousand tons (2007-2009) *

Crt. No.	Specification	YEAR						Average 2007-2009	
		2007		2008		2009			
		Effective	%	Effective	%	Effective	%	Effective	%
1	Production	531,5	54,6	1209,4	97,5	1182,1	130,3	974,3	93,7
2	Import	269,8	27,8	426,6	34,4	218,5	24,1	305,0	29,3
3	Stocks	311,0	32,0	250,0	20,1	50,0	5,5	203,7	19,6
4	Export	140,4	-14,4	645,0	-52,0	543,5	-59,9	443,0	-42,6
5	Total offer	971,9	100	1241,0	100	907,1	100	1040,0	100
6	Feed consumption	307,9	31,7	600,3	48,4	218,7	24,1	375,6	36,1
7	Seeds	83,5	8,6	90,6	7,3	119,0	13,1	97,7	9,3
8	Food	36,1	3,7	52,0	4,2	35,7	3,9	41,3	4,0
9	Raw materials	421,4	44,4	435,7	35,1	382,9	42,2	413,4	39,8
10	Other uses	1,0	0,1	9,0	0,7	1,5	0,2	3,8	0,4
11	Losses	121,8	12,5	53,3	4,3	149,2	16,5	108,1	10,4
12	Total demand	971,7	100	1240,9	100	907,0	100	1039,9	100
13	Balance sheet	+0,2	-	+0,1	-	+0,1	-	+0,1	-

*http://www.fao.org/

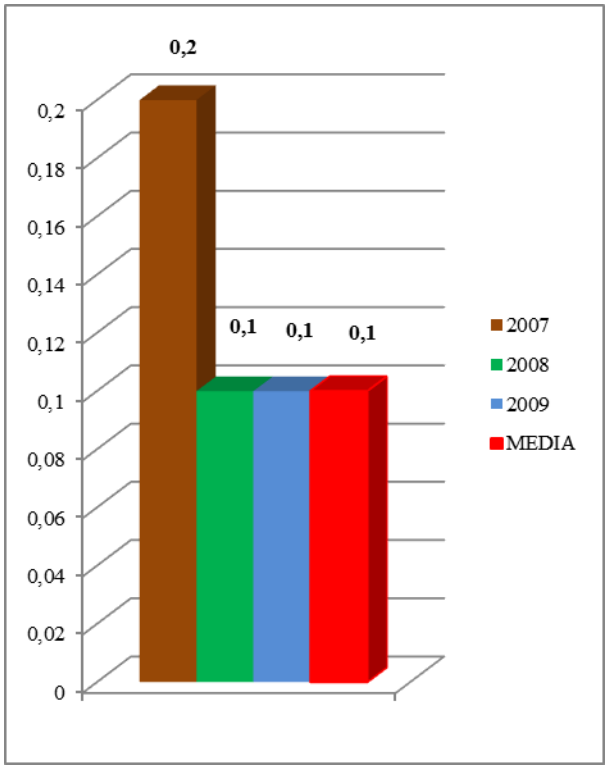

Fig. 1. Barley balance sheet (thousand t)

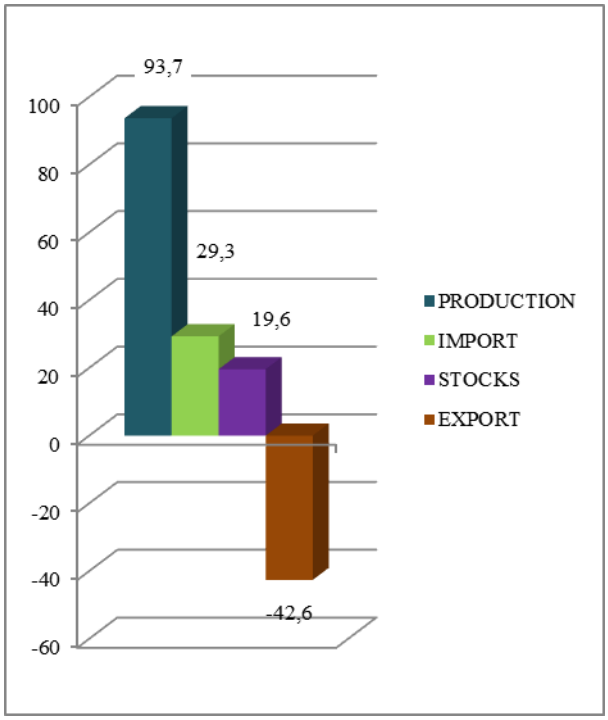

Fig. 2. Total supply - structure, period average (%)

Total demand reached 1,039.9 thousand tons, its structure presenting like (Fig. 3.):
-0.4% other uses (3800 t);
-food 4.0% (41.3 thousand t);
-9.3% seeds (97.7 thousand t);
-10.4% loss (108.1 thousand t);
-feed consumption 36.1% (375.6 thousand t);
-39.8% of raw materials (413.4 thousand t).

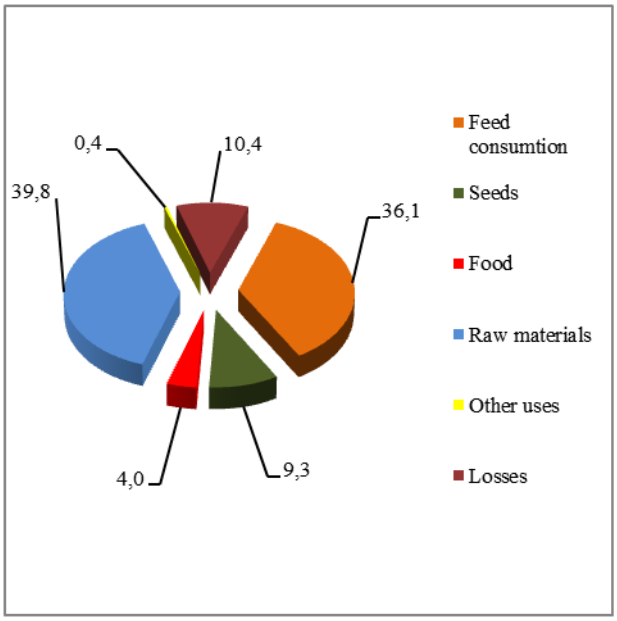

Fig. 3. Total demand - structure, period average (%)

Dynamic component elements of the national balance sheet of barley is presented in the Table 2.

Production increased by 2.27 times in 2008 compared to 2007, after which he recorded in 2009, a slight decrease compared with the previous term of dynamic series (-2.3%). Period average exceeded the first base of reporting by 1.83 times, but was lower than the second with 17.6%. Regarding imports it can be seen an uneven evolution. This creates sharp increases in 2008 compared with 2007 (58.1%), and decreased by 48.8% in 2009 compared to the previous term of dynamical series. Average of the period outrun both reporting bases by 1.13 and 1.39 times.

The stocks know strictly downward trend, successive annual declines recorded was 19.6% in 2008 and 80.0% in 2009. Under these conditions the average of period was only 65.5% from the first term of the dynamical series but ahead by 4.07 times the previous term (2009).

Table 2. Barley: Dynamics of the national balance sheet items (2007-2009)

Crt. No.	Specificare	YEAR						aVERAGE 2007-2009	
		2007		2008		2009			
		F_{bi}	M_{bi}	F_{bi}	M_{bi}	F_{bi}	M_{bi}	F_{bi}	M_{bi}
1	Production	100	100	227,5	227,5	222,4	97,7	183,3	82,4
2	Import	100	100	158,1	158,1	81,0	51,2	113,0	139,6
3	Stocks	100	100	80,4	80,4	16,1	20,0	65,5	407,4
4	Export	100	100	459,4	459,4	387,1	84,3	315,5	81,5
5	Total offer	100	100	127,7	127,7	93,3	73,1	107,0	114,7
6	Feed consumption	100	100	195,0	195,0	71,0	36,4	122,0	171,8
7	Food	100	100	108,5	108,5	142,5	131,3	117,0	82,1
8	Seeds	100	100	144,0	144,0	98,9	68,7	114,4	115,7
9	Raw materials	100	100	103,4	103,4	90,9	87,9	98,1	108,0
10	Other uses	100	100	900,0	900,0	150,0	16,7	380,0	253,3
11	Losses	100	100	43,8	43,8	122,5	279,9	88,8	72,5
12	Total demand	100	100	127,7	127,7	93,3	73,1	107,0	114,7

Romanian exports of barley conveniently evolved from 2007 to 2008 (an increase of 4.59 fold) decreased by 15.7% in 2009 compared with the previous period, of the dynamical series. For the average of period it is found above par levels of the indices with fixed base and subunit levels for those with mobile base - 315.5 and 81.5%.

In case of total offer there is a sinuous evolution, specific increases in 2008 (27.7%) than in 2007 followed by decreases in 2009 (-6.7 and -27.9% by the terms of reference).

Under these conditions both period average beat of the reporting base: 1.07 and 1.14 times (Fig. 4).

Food consumption increased substantially in 2008 compared to 2007 (1.95 times), but for the year 2009 decreased substantially beside both reporting bases (-29.0 and -63.6%). For period average is observed advancing of the reference levels of 1.22 and 1.71 times. When referring to seed consumption trends can be seen its upward trend, the dynamics is dominated by the values of the indices above

unit components (except for those with the mobilr base for period average - 82.1%).
At the level of Food consumption it is noticeable an uneven evolution, increases by 44.0% from 2008 (compared to 2007), followed by decreases of 1.1 and 31.3% for 2009. Period average result of this situation is over-unit to both terms of comparison: 14.4 and 15.7%. Consumption of raw materials evolve tortuous, small increases from 2008 (3.4%), followed by decreases in 2009 (-9.1 and -12.1%). In this case the average of period outrun the year 2009 by 8.0%, but it is lower by 1.8% compared to the first term of the dynamic series.
Different uses of the barley increased spectacularly in 2008 compared to 2007 (9.0 times), then decreased in 2009 compared to 2008 with 83.3%, so the average of period surpassed both reporting base 3.8 and 2.53 times respectively.
Regarding losses is convenient to note a trend from 2007 to 2008 (-56.2%), but a much less convenient for the year 2009 (advancing by 1.22 and 2.79 times terms of comparison). Period average subunit known values for both indices - 88.8 and 72.5%.

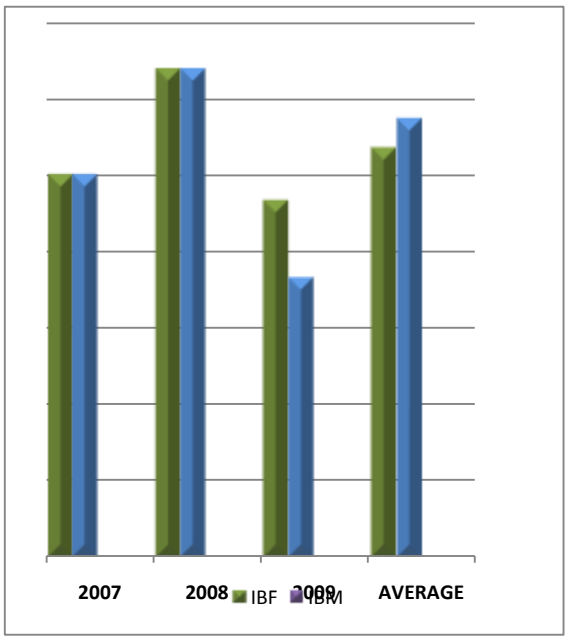

Fig. 4. Dynamics of total supply and total demand (%)

Regarding the total demand dynamics the trend it is found unevenly. Thus for 2008 demand increased by 27.7% compared to 2007, then in 2009 decreased by 6.7 and 26.9% compared with terms of reference and average reporting period exceeds basis by 7.0 and 14.7 % (fig. 4).

CONCLUSIONS

In the first instance it is noteworthy the surplus character of balance sheet (0.1 thousand t), situation consistent with the global trend, but different from the European one.
Total supply (1040.0 thousand tons) are 0.73 and 1.31% to the global and European level and the indicator is as natural, especially on production - 93.7%. Are of noticed imports made (29.3%) but especially the exports (-42.6%);
Total demand register with percentage contribution of 0.74 and 1.31%, in the global and continental levels indicators. Unlike what happens in Europe and in the world, for Romania is predominantly the consumption of raw materials at the expense of food consumption in total demand structure (39.8 to 36.1%) - this shows poor development of Romanian livestock (especially in terms of existing livestock). At the same time distinct appearance occurs, high weight loss 10.4% (approximately a three and almost ten times higher than the global situation and continental - aspect that should give a lot of thought to all actors are on the branch of this product);
Most of the balance sheet items are evolving uneven, distinguishing stocks which presents strictly downward trend and seed material consumption strictly evolving upward.

REFERENCES

[1]Barbu, C., Pânzaru, R.L, 2000, Agricultural Economics, Hyperion Publishing House, Craiova, Chapter 1, Part II, pp. 125 -162
[2]Constantin, M. et al., 2009, Marketing of agricultural production, Agro Technical Publishing, Bucharest, Chapter 4, Part I, page 73-98
[3]Stefan, G., Bodescu, D., Toma, A.D., Pânzaru, R.L, 2007, Economy and chain food products, Ed Alfa, Science, Chapter 10, p 326-446
[4] http://faostat.fao.org