

MODERN PROFIT MAXIMISATION TECHNIQUES FOR ROMANIAN FARMS

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Abstract: *Agriculturists are subjected to price volatility risk as players on a market in which offer and demand dictate the trend. This makes agriculturists appeal to different profit maximisation techniques aiming at reducing costs and ensuring minimum risk in valorising production. In this context, the authors of this paper present two ways of selling crops (particularly grains) through futures and forward contracts – modern alternatives to classical sale-purchase transactions – that could be beneficial for seller farmers.*

Key words: *farms, profit, trade*

INTRODUCTION

An alternative to increasing the profitability of an agricultural entity, of its profit, is to make sure the crop is valorised at its best price, and that the price fully reflects the coverage of the costs ensuring the necessary margin for profit for the agriculturist to feel he is stimulated. Why are farmers exposed to price volatility trends? Because offer and demand dictate the trend of sale price. What influences demand and offer? The amount on sale on the market, the number of offerors, the number of purchasers? The three components that influence sale price size can act alone, independent from each other, or together.

To avoid market fluctuations, agriculturists can rely on Forward contracts (anticipated) or on Futures contracts (to come).

MATERIALS AND METHODS

The methodology used in this research is mainly normative and it is made up of theoretical principles (theoretical conception of the studied field), methods and techniques for data collection (the necessary information support for a scientific paper), data processing methods and techniques (quantitative processing), and analysis and synthesis logical procedures (building up and systematise theory).

RESEARCH RESULTS

1. The Forward Contract

The Forward Contract is a bi-lateral agreement between seller and buyer to – object, price, bill maturity – are known upon contract signing which means that, legally, this is a determined contract. What neither of the parties can control or estimate is the contract clearing sale value (the virtual result of the contract) taking into account the price fluctuation between the moment T_0 (contract signing date) and the moment T_1 (due date).

Therefore, the person who signs a forward contract takes a loss risk if the clearing sale price is lower than the price stipulated in the contract. The virtual result assumed by the two players is given by the spot price on the maturity date.

For example, let us assume that an agriculturist signs a contract to sell wheat for 560 RON/t at the moment T_0 . If, at the moment T_1 , the spot price is 580 RON/t, the buyer gains 20 RON/t (because he got the wheat for 560 RON/t and sells it for 580 RON/t). If the

price drops at the moment T₁ to 540 RON/t, the buyer loses 20 RON/t. To illustrate this, we have analysed grain price in 2016 (Table 1, Figure 1).

Table 1.

Grain price FOB – Constanța Harbour 2016

Week	Date	WHEAT Price(\$/t)	MAYZE Price(\$/t)	BARLEY Price(\$/t)
1	06 January	189.89	-	-
2	13 January	189.55	203.58	-
3	20 January	194.58	180.15	-
4	27 January	188.96	179.21	-
5	03 February	198.50	172.65	-
6	10 February	191.13	-	-
7	17 February	180.48	166.16	-
8	24 February	204.00	180.36	-
9	02 March	180.25	167.13	151.94
10	09 March	180.02	167.00	-
11	16 March	211.05	166.16	-
12	23 March	181.68	168.85	-
13	30 March	179.82	-	-
14	06 April	173.48	166.13	200.31
15	13 April	181.92	-	-
16	20 April	176.09	-	-
17	27 April	174.82	168.97	-
18	04 May	-	-	-
19	11 May	171.48	-	-
20	18 May	183.74	179.03	-
21	25 May	179.98	167.24	193.37
22	01 June	182.73	-	-
23	08 June	183.49	-	-
24	15 June	183.58	176.00	-
25	22 June	184.87	188.23	164.50
26	29 June	191.93	183.14	161.85
27	06 July	179.56	-	165.12
28	13 July	172.90	-	160.25
29	20 July	169.82	160.00	161.06
30	27 July	170.45	210.00	160.10
31	03 August	171.28	-	158.10
32	10 August	169.42	197.27	156.92
33	17 August	-	-	-
34	24 August	170.79	-	155.38
35	31 August	173.54	-	153.01
36	07 September	168.64	-	-
37	14 September	171.96	172.03	-
38	21 September	171.99	187.74	161.11
39	28 September	172.89	168.39	-
40	05 October	169.78	172.00	-
41	12 October	168.81	187.13	156.17
42	19 October	166.84	175.13	-
43	26 October	168.97	170.79	154.93
44	02 November	167.25	181.84	159.00
45	09 November	171.16	170.87	155.91
46	16 November	165.50	184.22	153.52
47	23 November	175.30	165.44	-
48	30 November	169.70	170.94	-
49	07 December	167.83	167.70	-
50	14 December	172.20	168.93	-
51	21 December	173.09	171.91	154.98
52	28 December	172.29	167.54	158.06

Source: Direcția Generală a Vămirilor

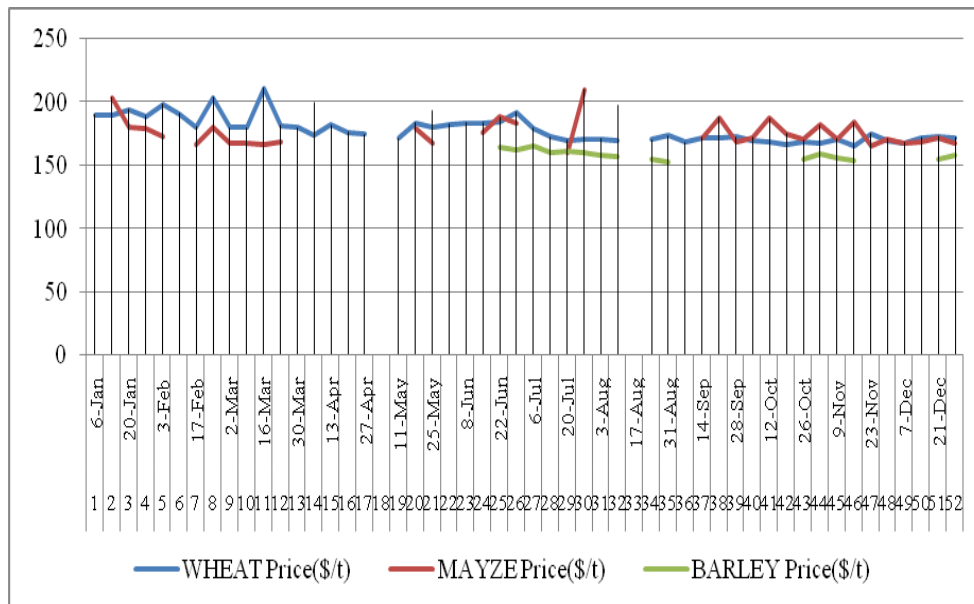


Figure s1. Evolution of grain price in 2016

CONCLUSIONS

We can see price fluctuations over the entire year. The price is high at the beginning of the year when they sell from the stock. Those who own storage units, silos, can avoid selling upon harvesting and wait for the proper time to valorise, when demand is high and the offer is low. The speculative trend practiced by market players with financial power influence sale price mainly and, as a consequence of increasing raw matter price, generate the premises for chain price rise and impact macro-economically by decreasing the purchasing power of the population. But it can also become a market regulator, by decreasing the purchasing power and, thus, consumption.

The forward contract signed at the moment $T_0 = 20$ April for wheat for 176.09 USD/t was profitable for the seller because the spot price at the moment $T_1 = 28$ December was 172.9 USD/t. Therefore, the seller gained 3.19 USD/t.

If the clearing sale had been at the moment $T_1 = 6$ July, when wheat was 179.56 USD/t, the profit would have been of the buyer. He could have sold the wheat for the spot price and record a financial benefit of 3.47 USD/t.

2. The Futures Contract

The futures contract is a will agreement between seller and buyer to purchase or sell a determined amount of merchandise for a pre-established price upon contract signing with maturity at a future time.

Futures contracts are standardised and the nature of the basic merchandise (quantity and quality) should meet contract requirements.

Futures contracts for a standardised merchandise such as wheat, for instance, is called *wheat futures* (if we traded wheat at the CBOT¹).

¹ CBOT – Chicago Board of Trade Holdings, the oldest grain futures market established in 1848 by 82 grain traders.

Futures contracts have a certain clearing sale date (month). The month of the clearing sale is pre-established and maturity contracts for wheat with clearing sale in June, for instance, are *futures June*.

The contract price is established at the stock market by negotiation and it represents the daily ratio between demand and offer. Therefore, the contract value (the multiplication product between unitary price and transaction unit) is no longer fixed (as in the case of a forward contract), but variable.

Hence, the features of the futures contract: it is updated on a daily basis or *market to market*, and losses by one of the parties are transferred to the other party as gains.

Thus, the buyer (who detains a *long* position) gets, into his account managed by a broker, a sum corresponding to the paper profit; if he loses, the corresponding sum (paper loss) is extracted, deducted from the same account managed by a broker.

The seller (who detains a *short* position) also can gain or lose, and the crediting or debiting techniques are similar to those affecting of the buyer.

The difference between a forward contract (in which the clearing sale takes place at the moment agreed upon) and a futures contract is that a futures contract has two clearing sale alternatives:

- The contract closes by delivery;
- The parties may clear the position by offsetting.

Operators who maintain open their positions until maturity need, according to the signed agreement, to clear the contract at a delivery date established by stock market regulations; it can be a certain day of the delivery month starting with the first delivery day and ending with the last delivery day. If delivery cannot be made, then clearing sale is done by cash payment.

The futures contract price for the wheat traded at the stock market is an expression of the market demand and offer: in practice, stock market prices are a standard – cash prices evolve like futures prices and tend to equalise at maturity.

Table 2.

Main differences between Forward and Futures Contracts

Forward Contract	Futures Contract
Signed by direct negotiation between the parties, outside the stock market	Signed at the stock market
Not standardised	Standardised
Its value is fixed, and the paper value at maturity is given by the difference between forward and spot prices	Its value is variable: it is market to market calculated based on the difference between the day price, the current price, and the previous day price; it has a secondary market since it is a financial derived quotable title
It is cleared in nature, at maturity, at the forward value stipulated in the contract	It can be cleared in nature, in cash, or at the stock market, by the party who detains a long position (the buyer) and it can be bought by the party who detains a short position (the seller)

Disadvantages:

- Scepticism of agriculturists in approaching this marketing or cost optimisation;
- Lack of information, maybe of education, of economic vision;
- Risk of price volatility;
- Supplementary costs with brokerage services.

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