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ANALYSIS OF CABBAGE CROP TECHNOLOGY

Alina Bianca PĂTRASCU, Manea DRĂGHICI, Valentina TUDOR

University of Agricultural Sciences and Veterinary Medicine, Bucharest, 59 Marasti, District 1, 011464, Bucharest, Romania, Phone/Fax: 00 40 744 6474 10; E-mails: alina_17tgv@yahoo.com, dmprofesor@hotmail.com, valentina_tudor@yahoo.com

Corresponding author: alina_17tgv@yahoo.com

Abstract

The purpose of this project is to show the classical technology of cabbage production, technology which is used in the farm. This technology is focusing on the preparation of the land, the maintenance of the culture, preparing the seedlings, the costs of the production, the medium production of an ha and the price of selling between 2005-2012. If this technology, the accomplishments can be the following: a comparing analysis between the price and production with the help of the statistical indicators.

Key words**:** *crop technology, evolution, grade cabbage, production*

INTRODUCTION

Cabbage is a biennial plant: in the first year is vegetating and in the second one it blooms. It is part of the Cruciferous family and has this name because has the 4^{th} tip of flower, with its flower elements in the cross shape. The flowers are categorized in yellow blossom.
Cabbage is the species with reduced requirements when compared with climatic factors. To obtain qualitative and quantitative big productions, cabbage requires an optimal temperature of vegetation of 15-16 degrees. The young plants can resist till 5-6 degrees, and the mature plans to 10-12 temperature degrees. The process of germination of seeds starts at 3-4 Celsius degrees, but the optimal temperature is 10-12 Celsius degrees.

MATERIALS AND METHODS

A framework technology has been used in the own farm. There have been used fertilizers for the technological process. Bucharest variety used is a sort of summer / autumn, with a high resistance to heat and cracking.
An comparative analysis has been made between the average production for 1 ha in exploration and in Dambovita county, as well as a average between the production in holding and the selling price in 2005-2012, these evolutions and correlation between production and price.
When it comes to calculation methods, it has been used arithmetic average and correlation coefficient.
Given that statistical study of mass phenomena in terms of statistical laws that govern them, which are characterized by the form of trend known and verified only at the aggregate level, it must naturally mass analysis of the links between the phenomena studied by all statistical trends as causal relations.
It is known that in the scientific, technical and natural sciences, an important place in the study of causal links where one or more phenomena uniquely determine the change of another phenomenon. In this case it is a relation of the functional form: $y = f(x)$, where x, y are real variables or vector.
The particularity of this type of connection is that a characteristic X–called feature independent factor(or exogenous cause) exercise some influence over another feature Y, called resultant feature dependent (endogenous or effect).
In statistics relations, a value of characteristic X factor corresponds to a distribution of values resulting features Y because Y dependent feature an influence on other factors (characteristics) that in terms of the

relationship between X and Y considered casual (regression and correlation, article).
For example, if the price of the product is dependent studies cabbage Y, and the average production per hectare achieved X, we will have a single bond, if the selling price is based on studies of average production per hectare.
The correlation coefficient measures the adequacy of a function relative to the actual values studied[6].

RESULTS AND DISCUSSIONS

The significance of the culture

The skull that is being consumed during the entire year represents the edible portand it can be ate as a fresh plant, sauerkraut, freezes, dehydrated or preserved. The cabbage's value is given by the high content of carbohydrates, mineral salts and vitamins, that are entirely used by the human body.[3]

Early green crops culture

Preparing the land

It's starts in autumn with an John Deere, at a 30-35 cm depth.
In spring starting with March, is given litter with a specific degree, where for 1 ha it's needed 15-20 tones and after that the land is being unlocked. The billon of the rows is part of preparing the land.
Fertilization with manure: NPK- 200 kg/ha
Sprayers: Stomp 2.4l/ha
Spread drip and sprinkler: for 1 ha -6000m drip necessary.

Seedling production

It has to start at the beginning of February.
To begin with fertilizer is fitting biological growth rooms: manure and straw, peat, organic manure.
It arranged shelter where fermented manure with straw where sitting in hot, then looks and then apply a thin layer of sand.
For 1ha of land it is necessary to produce 40000 of plants.
After 10-15 days from seedling emergence sub culturing in the alveoli.
The alveoli are being filled with peat and organic manure mixture. For 40,000 plants it is needed around 800 pieces. The depth of transplants is almost 2-2.5 cm.
At the begging when the seedlings are small and rare needs to be wet with water because dry soil only at the surface.
It is very important to make hardening seedling with 2-3 weeks before the full discovery on sunny days and nights frost.

Crop Establishment and Maintenance

Planting seedlings should be made in April when the soil temperature riches 8 degrees Celsius and in the next 2-3 days it is not expecting to frost.
The seedlings are being planted at a distance of 25-30 cm plant/row.
Irrigation is made when necessary, depending on temperature or if drought or not. For 1 ha of land, irrigation is done for 5 hours.
First weeding is made at 20 days after planting and weeding is made at 2-3 days manually. The ammonium nitrate administrated at 200 kg ha then irrigate. In total there are about 2-3 of mechanical cultivation and two manually. After breeding II is administered urea, about 150-200 kg / ha as ammonium nitrate, then walk sprinkler irrigation or flooding at the beginning of the formation of skull. It is used atomic which is also a foliar fertilizer faze about 300 ml / ha, 2-4 weeks after the planting. For pests uses as insecticide-DiazolMerpan or 200 ml / ha[1][2].

Table 1.

Year	Yield Kg/ha	Sale price Lei/kg	Production value Lei
2005	86,000	1.8	154,800
2006	82,000	0.4	32,800
2007	98,000	1.2	117,600
2008	79,000	0.8	63,200
2009	103,000	1.2	123,600
2010	97,000	1.5	145,500
2011	87,000	0.7	60,900
2012	102,000	2	204,000
Average	91,750	1.2	112,800

Source: Own calculation by data at farm level

In the table above we see the average production per hectare on the farm and the sale price of 2005-2012[4].

The largest proctor was made in 2009 and far lower in 2009 and the average of those eight years is 91750 kg / ha. The largest price recounted in 2012, is 2 lei, but when making an average between the highest price (2lei) and lowest price (0.4 lei) the price is actually 1.2 lei.[5]

Table 2. Correlation coefficient between production and sale price

Year	Production	f(x) (Lei)	F(x) (Lei)
2005	86,000	1.8	1.06
2006	82,000	0.4	0.84
2007	98,000	1.2	1.46
2008	79,000	0.8	0.65
2009	103,000	1.2	1.52
2010	97,000	1.5	1.45
2011	87,000	0.7	1.11
2012	102,000	2	1.51

Source: Own calculation by data at farm level

Equation was obtained:
$Y(lei/kg)=-13.062+ 0.000278679X - 1.33102E-09X^{2:}$
which has a ratio of correlation of0.6416*, is significant for a probability of 90% and a 10% risk.
The highest production in exploited and the county is found in a comparative analysis in 2009. Making an comparative analysis in Dâmbovita county, we see that the production of the farm throughout the years studied, exceeds the county level at a rate of approximately 350%.

Tabel 3. Comparison between farm production and average production at county level

Year	Farm production kg	County average production kg	Farm prod./ County prod.(%)
2005	86,000	23,497	366.0
2006	82,000	26,625	308.0
2007	98,000	21,279	460.5
2008	79,000	21,733	363.5
2009	103,000	28,786	357.8
2010	97,000	26,985	359.5
2011	87,000	27,985	310.9

Source: Own calculation by data at farm level studied

Following the data from Table 4, we see that the level of production, compared with the years 2005 and 2009, actually reached the maximum level, exceeding production by 19.8%. After implementing the technological process in 2012, we achieved a production of 102,000 kg / ha, production which has been harnessed by Lei 2/ kg. Lowering the production costs amounting to Lei 13,438.4/ ha, we obtained a profit of Lei 190,562/ha. We concluded that the technology is very good considering the average production obtained, and the profit from this year.

Table 4. Evolution of cabbage yield and selling price

Year	Prod. kg/ha	2005=100	Price of sale Lei/ kg	2005=100	Value of prod. Lei	2005 =100
2005	86,000	100	1.8	100	154,800	100
2006	82,000	95.3	0.4	22.2	32,800	21.2
2007	98,000	114.0	1.2	66.7	117,600	76.0
2008	79,000	91.9	0.8	44.4	63,200	40.8
2009	103,000	119.8	1.2	66.7	123,600	79.8
2010	97,000	112.8	1.5	83.3	145,500	94.0
2011	87,000	101.2	0.7	38.9	60,900	39.3
2012	102,000	118.6	2	111.1	204,000	131.8

Source: Own calculation by data at farm level

CONCLUSIONS

-Cabbage is a biennial plant generally a species with reduced requirements from climatic factors.
-Establishment culture begins when the soil temperature is recorded at 8 degrees Celsius.
-Young plants can withstand 5-6 degrees Celsius, while mature plants 10 to 12 degrees Celsius.
-Using this technology we obtained an average production per hectare in the last 8 years on average 91,750 kg
-Variety of cabbage used reach a weight of 3-4 kg
-Favorable production costs and make profit, a cost of Lei 13,438.4.

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