CONSIDERATIONS ON THE EFFECT ON PRODUCTIVITY AND PERFORMANCE OF PRODUCERS OF GRAIN ON THE APPLICATION OF THE MODEL OF AGRICULTURAL BUSINESS AND PUBLIC POLICY

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ABSTRACT

The term agribusiness is associated with the installation of a new paradigm of exploitation in grain production. It was stated that the new paradigm a new innovative farmer supplant the old and limited knowledge of producers.

From the analysis of economic developments in production costs, marketing costs, yields and gross production of wheat and soybeans between 1991 and the present margins, we pretend to make a contribution to quantitatively describe the evolution of investment and profitability both crops and highlight the influence of public policies on profitability, aspects that allow us to reflect in particular on the reasons for the disappearance of thousands of farms in recent decades. Statistical analysis indicated and the advancement grade of the practices of contracts in grain production allow relativizing and question the statements indicated that the new paradigm became explosively productive and profitabe in grain production, increase knowledge of producers and the inadequacy of that transformation caused the disappearance of thousands of farms in recent decades.

KEYWORDS: Agribusiness; Disappearance of holdings; Costs; Profitability; Contracts.

INTRODUCTION

A few years ago the use of agribusiness concept in the analysis of agricultural production became widespread. The term, coined in our country by the engineer Hector Ordoñez in the 90s and then used, insistently, by researchers of the subject, is associated with the installation of a new paradigm for the agro industrial system linked with grain production. Regarding agricultural producers, stated that a new innovative farmer replace the traditional farmer and business networking (which integrate diverse financial activities, knowledge of technology, marketing, market performance, ability to make service contracts with third parties, etc.) supplant the old and limited knowledge of producers.

A particularly controversial aspect is the claim that the new property knowledge paradigm generates greater significance than the ownership of land - aspect of central importance in traditional studies on the pampas agriculture.

DEVELOPMENT

Disappearance of farms in the 90s and agribusiness

Disappearance of holdings in the 90s and agribusiness national agricultural censuses show that between 1988 and 2002 there was a sharp drop in the number of farms; on the first date were surveyed 374,505 farms (CNA 1988) and only 291,573 in the census of 2002. In agricultural area north of the province of Buenos Aires[1], the existing 10,478 farms in 1988 were reduced to only 6,751 in 2002. In this region the concentration process in land used by medium and large farms led to those of more than 400 ha, occupying 45% of the agricultural land in 1988 covered 60% of the land in 2002. In the

[1] This area includes the districts of Baradero, Bartolomé Mitre, Carmen de Areco, Capitán Sarmiento, Colón, Chacabuco, General Arenales, Junin, Pergamino, Ramallo, Rojas, Salto, San Antonio de Areco, San Nicolás and San Pedro according to Pedro Gómez. Delimitation and characterization of the region in Barsky, Osvaldo. The Pampas agropecuarian development, Buenos Aires, INDEC, INTA, IICA,1991.

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Pergamino Department, between 1988 and 1999 there disappeared 30% of farms, mainly affecting households less than 100 ha. (879 and 501 respectively EAPs)[2].

Former Secretary of Agriculture, Livestock, Fisheries and Food, Dr. Felipe Sola, considered that the existence of low international prices since the 80s, hurt the sector, stressed the importance of technological change and the need for adoption of economy scale as the main causes of the disappearance of farms:

> "The adoption of an innovation had result - measured as rentability - only if it had previously been applied to others that preceded had a´ theoretical path ´of technological rationality. Not all farms reacted similarly; some advanced ´in´ spiral into ever higher levels of technology and hence to steps also higher in productivity; others were left behind in the process of change in agriculture, in many cases they were not able to adapt their production to the requirements demanded by the new technology structures. Holdings lagged put a ceiling on productivity, causing the expansion of a gap between the two types of units" [Sola, F.1991, p.457] (1)

From an economic and production point of view, it inexorable judged the disappearance of small producers, product advancement of productive forces and the question of the disappearance of farms was minimized:

> "Do we have admiration for the achievements of a Grobocopatel in the field of agricultural production? Certainly. Argentina's socialist future is to find a very high degree of labor productivity. Remove productive structures of this type in the name of an alleged bourgeoisie SME's claim to bring the production to the level of a century ago forces. It is simply barbaric(...) As Engels says about the small agrarian bourgeoisie, it will not do anything to hasten their downfall, but also to save them" [Sartelli, E., 2010, 140/141](2).

Horacio Giberti, included economic, social and political aspects of the problem and assumed the role of technological change as the cause of the lack of competitiveness of small and medium-sized farms, but warned and proposed solutions for small landowners affected by technological change:

> "What I think is important is to study the situation of small and medium producers, some of them are not viable, because technical progress has made low cost surface, grown a lot. Nor is it a matter of letting them die, because as an Assistant Secretary of Agriculture said, ´there must disappear 300,000 smallholders´. Because there is a social problem behind it; there are two ways to address it; develop plans to withdraw them from production, as it can be reasonable to retire them (many medium and small are old), you buy land and redistribute profitable

[2] The data on disappearance of exploitations in Pergamino, Azcuy Ameghino (2000).

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> production units or transform them into more intensive producers (horticulture, farmers, etc.)" [Pierri, J., 2004, s/p][(3)].

In short, what was undoubted was the disappearance of farms and consequent land concentration and activity. In the field of interpretations, beyond that the various authors explain various ways for the consequences of the phenomenon, everyone assumes that technological change have been the main cause of the disappearance of farms, although, as we shall see, there are no source statistics on the evolution of costs and returns that allow to assert unequivocally that this was the main reason that caused the loss of farms.

The concept of agribusiness in the 90s

Hector Huergo coined the phrase 'the Pampas Second Revolution' and popularized the term agribusiness to refer to the process of increasing productivity and production in grain crops during that decade. In his opinion, the introduction of technology was the major driver of change:

> "The country entered a spiral of growth; direct seeding, the massive use of fertilizers, biotechnology RR soybeans, glyphosate, corn silo bag baguette and, among others, promoted in 10 years to double production reaching 80 million tons (...) The decade demanded producers an attitude of permanent change" [Huergo, H., 04/08/2005][(4)].

The new production model described by Huergo falls within the theoretical framework proposed by John Davis and Ray Golderg to analyze agricultural transformation of the 60s in developed countries[3]. However, the new concept was not incorporated in Argentina until the mid-90s, when the policy of economic deregulation and changes to the authorization of soybeans and direct seeding, with systematic campaign to publicize the new paradigm part of some academics and journalists, imposed the use of new terminology.

The engineer Hector Ordonez, diffuser of the concept in the country, called it a host of new alternative strategies to traditional food production, limited by restrictions and

[3] Davis and Goldberg, 1957, 38.

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limitations imposed by a complex web of interrelationships[4]. According to Ordoñez, innovations must pass through all the technological, organizational and institutional environments, i.e., changes in technology and organization of farms must match a suitable historical and institutional moment, allowing modifications and turn simple farms into complex business networks. Institutional change is interpreted as the set of laws, rules and installation of a cultural environment that enable and legitimize the process characterized innovation, according to Ordoñez, its systemic nature, in which all players in the agribusiness chain are interrelated by network of contracts and agreements between primary producers, work contractors, input suppliers, agents, marketing, transport, finance providers, processing industry and other stakeholders.

In that sense, Hector Huergo explained agribusiness as a result of economic deregulation implemented in the 90s and the cheap dollar that accompanied those policies and favored the incorporation of imported technologies and was powered by the innovative nature of agricultural producers that have been transformed during those years Schumpeterian entrepreneurs. That condition of innovative entrepreneurs is underlined by Huergo, who even stated that the incorporation of new technologies spread in some cases ideological conviction, investing risk, even against economic policies, from the year 2005 there would have begun a second Discrimination of the Pampas[5] against the sector.

The lack of entrepreneurial spirit and, therefore, the concept of adequacy Agribusiness by traditional family farms was, according to many authors, the main reason for the disappearance of thousands of farms. Pointed out, crudely, by Gustavo Grobocopatel:

> "It is true that there are one hundred and fifty thousand producers less, which went broke in the past decade. So the competitiveness of soybeans was made with blood. It was not a party. And what is the competitiveness of soy? It is the sum of technological and organizational innovations that went into the field during the last fifteen years." [Grobocopatel, 09/15/2003 p.54](5)

[4] Ordoñez. Hector, 'New agro feeding economy and businesses', Agronomy Faculty, UBA 2009. The author was creator and Director of the Agro Business and Food Program, in the Faculty of Agronomy of the Buenos Aires University.

[5] Huergo (2005) affirmed on the innovations that 'the technological revolution carried on more by ideological conviction of the actors, than by economy convenience', highlighting the risky character of the investments.

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The new paradigm of agribusiness in agriculture included the following concepts of interest:

a) A new organization of work that should replace the old family farm for the network-company, which integrate primary and industrial production, rural tourism, sale or purchase of services to other companies, financial expertise, etc., which adapt to changes and opportunities in the global market.

b) Another noteworthy aspect of the new paradigm is that it would have changed the hierarchy of factors of production, subordinating, for example, land ownership to ownership of knowledge[6], acquired in different masters and doctorates and other forms of private dissemination of knowledge related to agribusiness[7].

c) The loss of significance of land ownership takes, in the extreme, to define themselves as 'landless', perhaps the main reference of agribusiness in those years, who said: "The property is not concentrating, what is concentrating is the management (...) We have no property. I am landless. 80 percent of what I sow is not in my own land" [Grobocopatel, 04/25/2004](6)

A central idea by the concept of agribusiness is that the producer assimilates its operation to any company and not in terms of family exploitation, in an institutional context that changes the rules (laws and other regulations and cultural change) that enable organizational and technological change in agricultural enterprises, i.e. in periods, converging public policies with strategies for competitive business. Norberto Ras was, perhaps, who expressed more precisely, the close relationship, in his view, between the institutional change occurred in the 90s and the consolidation of the new paradigm, and he said:

[6] Hernandez, Valeria (2009), analyzes, in particular the aspect of the ownership of knowledge in agriculture under the new paradigm.

[7] It was important action AACREA (Argentina Association of Regional Consortiums for Agricultural Experimentation) AAPRESID (promoter of direct seeding) in disseminating the new paradigm.

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> "The time we live begins in 1989. A profound transformation of the entire macroeconomic policy provides three significant features for technological innovation in the rural sector:
> a) A rigorous administrative control that promises a balanced budget, stable currency, decreasing tax burden, economic liberalization and reduction of parasitism and bureaucracy.
> b) The devolution to the agricultural sector a leading position in the national economy and security of not being subjected to invidious discrimination.
> c) Diversification of the private sector privatized many services and supported enterprise participation in business sector research, dissemination and adoption of incorporated inputs, technical training and other mechanisms." [Ras, 1994, p.23](7)

The costs of agricultural production in the statistical sources

There is no statistical testing to prove exactly, since the economic costs and profitability studies, the different interpretations of the possible transformations attributed to the new paradigm of agribusiness and empirically contrast the magnitude of the 2nd so called Revolution of the Pampas and productivity gains and profitability associated with organizational changes in the field.

We have already pointed out the difficulty to build statistical series due to the limited and incomplete existing information on the evolution of production costs and expenses grain marketing in recent decades, an aspect which includes the difficulty of seeing the diversity of cases that make up the world of agricultural producers. The marked difficulty is contained in the important work of Sola (1991), who noted that he had to put together the statistical data on the evolution of different types of farms using qualified sources[8].

Most of the work on economic developments of farms had to resort to the data provided by the journal Márgenes Agropecuarios, published since the mid-80s[9] and presents cost structures every month. Among the objections that can make the ideal cost model provided by Márgenes it should be noted the inconsistency between the market prices of grain available and used by the publication in calculating the income of producers and the disparity in yields per hectare proposed by the magazine for the core zone model compared to actual changes in crop yields on farms each year. Márgenes makes a

[8] One should highlight, that Sola´s statistic charts, do not mention statistic sources.
[9] Márgenes Agropecuarios is a monthly magazine which reports prices, yields, costs and earnings in the nuclear zone of the country, (later enlarged to bigger regions).

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discretionary update, annual yields per hectare and, with regard to prices, the magazine estimated as the value near future (at the time of harvest), which disagrees with the values available in bags of grain for the months indicated. The magazine presents the costs, revenues and gross margins on a monthly basis, reason why in a previous work it had proceeded to construct the time series 1992/2010 based on data from the first three months of each year.

Empirical Study

Studying the evolution of production costs in wheat and soybean (Tables 1 and 2) as data to estimate the Márgenes Agropecuarios investment grade degree and indirectly, the degree of entrepreneurial spirit of producers.

Table N°1: Cost structure of soybean per hectare (u $ s constant)

Year	U$S/ha	U$S/ha	U$S/ha	U$S/ha	U$S/ha	U$S/ha
	Commercialization Expenses	Tilling	Seeds, inoculant and fungicide	Agrochemicals and Fertilizers	Crop	Costs
1992	56.58	36.07	21.89	47.60	30.83	192.96
1993	55.37	34.47	18.08	50.40	33.12	191.44
1994	60.50	33.09	23.21	43.09	35.63	195.52
1995	55.92	33.50	22.57	44.78	31.52	188.30
1996	59.23	32.42	22.44	45.65	28.80	188.55
1997	65.98	35.25	22.43	43.49	34.58	201.73
1998	59.42	34.29	23.07	43.08	30.88	190.73
1999	53.74	36.61	21.13	31.74	21.83	165.04
2000	55.46	33.08	16.73	28.43	22.05	155.75

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2001	67.44	32.40	19.24	24.89	23.96	167.94
2002	43.78	14.71	16.65	23.02	17.28	115.45
2003	35.22	18.30	18.59	20.76	18.27	111.13
2004	49.81	21.03	17.79	19.27	26.19	134.09
2005	39.19	21.92	19.20	35.51	22.07	137.89
2006	41.52	21.28	17.51	32.70	24.15	137.16
2007	46.52	24.82	17.02	33.12	23.74	145.23
2008	69.81	29.41	21.14	52.12	23.61	196.09
2009	62.40	35.62	20.38	52.17	24.30	194.87
2010	58.00	37.72	18.43	34.33	24.55	173.04

Source: Own Elaboration calculations based on Márgenes Agropecuarios. In constant US dollars (1982-1984 = 100). Values established for one hetare. For the first quarter of each year

The study of the evolution of soybean production reveals that the costs have been broadly stable over time and show a slight decline when comparing 1992-1994 for an exploited hectare for the first quarter of each year. Triennium in the period 2008/2010.The cost of crops, which as early 90s were around u$s 33/ha., At the end of the series they had similar values, having hovered in the period 2002/2007 u$s 20/ha, except for the exceptional year 2002 when spending would have been only u$s 15/ha. Similar developments were spending on seeds and inoculants and some differences in the cost of chemicals and fertilizers, which had a sharp drop between 1999 and 2004, then beginning a sustained increase that became extraordinary in the years 2008 and 2009 was observed and then to return to a level of u$s 34/ha in 2010.

It should be stressed that, according to data from the source, there is not observed a significant drop in the cost of tillage at the end of the series, as it could be widespread after the start and use of glyphosate/tillage assumed from 1996. Another aspect is the increase in marketing expenses, which tends to increase in the years 2001, 2008 and 2009. These

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expenses are not derived from the investment decisions of producers (not directly related to their entrepreneurial spirit) only decrease substantially in the years of the great economic crisis of 2002/2004, which subsequently recovered to a record value in 2008 - of unusual international prices, when there was the long agrarian conflict. It should be highlighted, for the purposes of this paper, strong cost fluctuations produced in the years of strong variation of the exchange rate and / or extraordinary grain prices (years 2002/2005 and 2008/2009). The phenomenon seems to show that the levels of costs and expenses in the production and marketing of grain determination beyond the international cost of agrochemicals and seeds[10] (as might be supposed inputs that are traded in the international market in dollars) and if, as a result of domestic economic policies and/or monopolistic or oligopolistic conditions for the provision of these inputs on years of extraordinary prices grains. In contrast, fluctuations in the cost of tillage and crop accompanying fluctuations in the exchange rate and are, therefore, more explicable, being disconnected from international prices.

Table N°2: Cost structure of wheat (constant price s)

Year	U$S/ha	U$S/ha	U$S/ha	U$S/ha	U$S/ha	U$S/ha
	Commercialization Expenses	Tilling	Seeds cure	Agrochemicals and Fertilizers	Crop	Costs
1992	48.64	43.29	17.89	15.58	18.36	143.76
1993	45.21	38.35	17.88	16.88	18.74	137.06
1994	46.15	30.64	13.49	15.31	16.81	122.39
1995	47.00	30.83	17.23	15.15	17.34	127.54
1996	50.32	29.95	25.44	5.83	22.22	133.76
1997	53.76	38.12	16.33	15.07	23.99	147.27
1998	53.90	37.54	11.55	24.78	17.55	145.32
1999	50.43	36.74	9.58	25.51	16.25	138.51

[10] See Pierri, Joseph and Orlando, Ezequiel (2013).

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2000	48.48	35.54	12.20	25.09	13.20	134.51
2001	61.96	20.33	14.23	61.08	21.90	179.50
2002	38.21	11.58	12.64	60.21	14.58	137.22
2003	31.97	16.53	12.32	55.39	16.00	132.21
2004	39.60	16.20	12.23	61.58	18.98	148.59
2005	36.73	15.96	11.83	70.01	15.92	150.44
2006	39.42	15.50	11.46	68.33	17.12	151.83
2007	41.61	16.56	12.15	66.99	18.30	155.62
2008	60.16	18.95	20.44	105.86	19.43	224.84
2009	58.34	23.74	22.00	120.93	17.94	242.94
2010	53.33	25.16	18.16	78.35	17.16	192.16

Source: Own Elaboration calculations based on ´Márgenes Agropecuarios´. In constant US dollars (1982-1984 = 100). Values for an exploited hectare for the first quarter of each year

In wheat production, the outstanding feature is the increase in the total cost of production and marketing would have happened from an average of u$s 134/ha in 1992-1994 triennium to about u$s 220/ha- for the 2008/10 triennium (in constant u$s dollar 64%).

The declining costs of tillage on total was shocking; close to 30% of total expenses at the beginning, represented only 13% of these costs at the end of the series. However, in the period, expenses for the use of agrochemicals and fertilizers, which increased their share of total costs from about 12% in the early years to over 40% rose sharply. Measured in constant dollars, spending on agrochemicals and fertilizers more than 600% between 1992-1994 triennium average increased (u$s 16/ha.) And the 2008/10 triennium (u$s 101/ha.).

The devaluation in January 2002 was the main reason for the improvements in the cost structure and profitability of producers until 2007; several of these costs faced in national currency devalued while grain prices remained linked to foreign currency prices.

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Table 3 shows that investment in agrochemicals for soybean production would have increased between 10-30% between the beginning and end of the series (except for the unusual price of agrochemicals in 2008 and 2009) as opposed to the extraordinary increased costs of agrochemicals per hectare to produce wheat, which were increased by over 400% between the beginning and end of the series.

Table N°3: Cost of agrochemicals in the production of soybeans and wheat 1992/2010

Year	Soy	Wheat
1992	97.50	46.96
1993	98.94	50.22
1994	98.27	42.68
1995	102.64	49.33
1996	106.81	49.05
1997	105.81	73.55
1998	107.82	59.22
1999	88.07	58.46
2000	77.75	64.20
2001	73.50	142.30
2002	74.80	135.10
2003	73.60	131.30
2004	66.70	143.30

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2005	104.00	156.40
2006	101.60	161.20
2007	107.20	174.50
2008	160.80	289.90
2009	136.40	237.70
2010	116.50	216.10

Source: Own Elaboration calculations based on ´Márgenes Agropecuarios´ Ma. In current US dollars. Values for an exploited hectare. For March each year

When comparing the evolution of production costs and marketing costs of soybean and wheat between 1992 and 2010 it is shown that the total costs to produce soybeans were relatively stable between both ends of the time series, but with very strong oscillations declining between 2002 and 2004 and increased sharply between 2008 and 2009. In wheat production, however, costs rose sharply, about 63%, caused by the sharp increase in spending on fertilizers and agrochemicals, too much unchanged in the percentage structure of the other major costs.

Yields and profitability

Regarding the increase in productivity per hectare Márgenes Agropecuarios data (see Table 4 and 5) show that the yields of wheat production increased to a greater extent than soy. According to the ideal model proposed by the kernel source for each crop areas, increasing yield per acre of soybeans between 1992 and 2000 would have been around 44% (25 quintal/ha in 1992 and 36 quintal/ha in 2010) and in the case of wheat of 70% (25 and 42 q/ha respectively). The data of the magazine have given their modeling character, abrupt changes in yields in some years (soybean, changes of 27 q/ha in the year 2000-36

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quintal in 2001 and wheat in the same year quintals per hectare is expected also to increase disproportionately from 31 quintal (2000) to 42.5 q/ha (2001).

The evolution of the yields offered by Márgenes shows correlation with actual data reported in each campaign at the country level, but important differences from year to year. According to Yearbooks Grain Exchange Buenos Aires increases in soybean productivity in the provinces of Buenos Aires and Santa Fe between 90/91 and 92/93 three seasons (24.2 quintal / ha. on average) and the last three (except for very low yields in 2008) between 2007 and 2010 (31.5 q / ha.) would have been somewhat higher at 30% (down from 44% claiming Márgenes for the core area).

In the case of wheat, the differences between the yields offered by Márgenes and data exchange are higher. Márgenes estimated productivity increases by 70% between the early 90s and the 2008/2010 triennium, while data from the Grain Exchange only show an increase in yields of 45% between 1985-1990 and the last five years (also excluding 2008 of severe drought).

Table N°4: Costs and gross margins in 1992/2010 so ybean production

Trimestre	QQ / ha Yields	U$S/Tn Price	U$S/ha Gross Income	U$S/ha Selling Expenses	U$S/ha Net Income	U$S/ha Total Costs	U$S/ha Gross Margin	$/ha Gross Margin
1992	25	192.2	480.6	79.4	401.2	191.4	209.8	209.8
1993	25	212.7	531.7	80.0	451.7	196.6	255.1	255.1
1994	25	243.7	609.2	89.7	519.5	200.0	319.3	319.3
1995	25	226.0	565.0	85.2	479.8	201.7	278.1	278.1
1996	25	258.2	645.4	92.9	552.5	202.9	349.7	349.7
1997	25	296.0	740.0	105.9	634.1	217.9	416.2	416.2
1998	25	241.7	629.2	96.9	532.6	214.0	318.3	318.3

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1999	25	181.8	454.6	89.5	365.1	185.4	179.7	179.7
2000	27	182.3	485.8	95.5	390.3	172.7	217.7	217.7
2001	36	160.3	576.7	119.4	457.3	177.9	279.4	279.4
2002	36	133.0	479.0	78.8	400.3	131.1	269.2	568.9
2003	36	150.6	542.3	64.8	477.5	139.7	337.7	1068.8
2004	36	198.3	713.8	94.1	619.6	159.2	460.4	1339.0
2005	36	149.6	538.6	76.5	462.0	192.8	269.3	788.9
2006	36	168.9	608.1	83.7	524.3	193.5	330.9	1014.2
2007	36	195.4	703.3	96.5	606.9	204.7	402.2	1245.3
2008	36	326.0	1173.6	150.3	1023.3	271.8	751.5	2368.8
2009	36	223.3	804.0	113.9	670.2	284.4	385.8	1366.2
2010	36	228.7	823.4	126.5	696.9	250.9	446.1	1712.6

Source: Own Elaboration calculations based on Márgenes Agropecuarios (in current US dollars for an exploited hectare for the first quarter of each year)

With regard to profitability, according to data Márgenes, soy producers increased their gross earnings by 102% comparing the 1992-1994 triennium average gross margin in current dollars (u$s 261/ha.) with the triennium 2008/2010 (u$s 527/ha) well above the gross margin of those who produced wheat, which only did 57% (u$s 101/ha on average in the 1992/94 triennium and u$s 158 in the 2008-2010 period). It should be noted the extraordinary increase in gross margin measured in domestic currency obtained from 2002 (in soybeans, from $279/ha. In 2001 to $1,068/ha in 2003) resulting from the decision to abandon convertibility Currency and proceed to the devaluation of the exchange rate.

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The higher gross margin for wheat soybeans was obtained despite increases per hectare of wheat yields were higher. More profitability was the result of the prices of oilseeds which were more stable over the entire period and had an extraordinary rise in 2008 (remember that the price in dollars are domestic prices, and discounted the export retentions), which contrasts below with what perceived by wheat, in many campaigns under u$s 100/ton price.

Table 5 shows the progress of the required investment and gross margin evolution in the production of cereal. The application of new technology (production methods, seeds, agrochemicals, fertilizers), enabled a remarkable expected yields increased. The use of new technology suggests the producer of wheat as a typical example of 'Schumpeterian entrepreneur' who try to increase their profits by increasing their investment, but as seen in the pictures, their economic results were meager.

Table N°5: Costs and gross margins in wheat produc tion during 1992/2010

Trimestre	QQ/ha Yields	U$S/Tn Price	U$S/ha Gross Income	U$S/ha Selling Expenses	U$S/ha Net Income	U$S/ha Total Costs	U$S/ha Gross Margin	$/ha Gross Margin
1992	25	114.5	286.3	68.2	218.0	127.4	90.6	90.6
1993	25	120.3	300.8	65.3	235.5	132.1	103.5	103.5
1994	25	114.9	287.3	68.4	218.4	114.0	104.5	104.5
1995	25	124.3	310.8	71.6	239.2	122.8	116.4	116.4
1996	25	221.3	555.5	78.9	474.7	130.2	344.5	344.5
1997	29	137.7	401.0	86.3	314.7	155.1	159.6	164.0
1998	31	115.3	357.5	87.9	269.7	150.2	119.5	119.5
1999	31	97.0	300.7	84.0	216.7	147.6	69.0	69.0

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2000	31	91.7	284.2	83.5	200.7	147.4	53.3	53.3
2001	42.5	114.0	484.5	109.7	374.8	208.1	166.7	166.7
2002	42.5	95.3	404.1	68.7	335.4	178.0	157.4	332.5
2003	42.5	109.3	464.7	58.8	405.8	184.4	221.5	700.9
2004	42.5	120.5	512.1	74.8	437.4	205.8	223.8	792.3
2005	42.5	91.6	388.7	71.7	317.0	222.0	94.9	278.1
2006	42.5	101.5	431.3	79.5	351.8	226.5	125.3	384.1
2007	42.5	119.1	506.2	86.3	419.9	236.4	183.5	568.1
2008	42.5	181.6	771.7	129.5	642.2	354.5	287.7	907.0
2009	42.5	129.4	550.0	125.2	425.1	396.2	29.0	108.8
2010	42.5	135.4	575.7	116.3	459.4	302.7	156.7	601.6

Source: Own Elaboration calculations based on Márgenes Agropecuarios. In current US dollars. Values for an exploited hectare for the first quarter of each year

In contrast with increasing exposure level of capital invested by wheat producers along these years, costs incurred for the production of soybeans were lower and stable.

The devaluation in January 2002 was the main reason for the improvements in the cost structure and profitability of producers in both crops until 2007, since when high yields were associated with high international prices. The policy decision to abandon the peso / dollar began a period of higher gross margins for both crops, beyond that, in those years, the concept of agribusiness was more widely difused.

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Rural Contratismo

During most of the twentieth century recruitment activity in planting, tilling and harvesting was present in the Pampas areas. As a private activity of individual character and there not having existed State control policies, there is abundant information about its operation. Llovet (1991) highlighted the relative lack of information, but despite this failure, pointed out , citing Tort (1983) - the important recruitment use in agricultural activities in Tres Arroyos (33.1%), Columbus (56%), Bolivar (47%) and Marcos Paz (29.3%) by the year 1977.

It is estimated that during the 80s and in recent years the use of recruitmentof work increased. Balza (2008, 604) estimated that in 1988 57% of the that cultivated with cereals and oilseeds in the north of the province of Buenos Aires surface using agreements with contractors and it became 72% by 2001 in the the province.

For the past few years, the National Recruitment and Agricultural Inputs Director, Engineer Ricardo Garbers, states that an estimated 70% of the sow activities performed under recruitment and values become 90% on tasks vintage[11].

Despite the difficulties of measuring the activity, there is unanimous consensus about the high percentage of recruitment in planting activities (even the producers maintain a ratio due to the lower cost of machinery) and the near monopoly in the grain harvest (highest cost of machinery is practically impossible to purchase and amortization by producers).

CONCLUSION

A stated purpose of this study was to analyze the data on changes in production costs, marketing costs and gross margins, and from this information to analyze various concepts associated with what was defined as the new paradigm of agribusiness based on technological innovation and productivity increases in grain production.

[11] Interview with Ing. Ricardo Garbers, National Director of Contratismo and Agricultural Inputs, June 2013.

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It should be noted, first, that the growth of productivity and grain production were before and after the implementation of institutional and cultural change and organizational and technological changes on farms operated in the 1990s, in the table below one can observe the change of production and productivity in the country.

Table N°6 : Evolution of production and productivi ty of wheat and soybean 1960/2010

Year	Wheat	Wheat		Soy	Soy
	Productivity	Production		Productivity	Production
	Kg/Ha	(Thousand Tons)		Kg/ha	(Thousand Tons)
1960	1160	4200			
1970	1329	4920		1624	
1980	1549	7780		2005	3.770
1990	1892	10959		2256	10726
2000	2490	15969		2586	26882
2010	2489	7494		2905	52676

Source: Own Elaboration according Yearbook Grain Exchange Buenos Aires 2010/11

Increases in productivity and output were constant since 1960 and predate the policies implemented in 90 Percent increase in wheat productivity between 1970 and 2000 were higher (around 90%) -but contrast with the more growth of soybean production compared to cereal.

The Margenes Agropecuarios data of Agricultural and Grain Exchange, albeit with significant differences, show that the performance increase between 1980 and 2000 was higher in wheat production in the soybean and should be remembered that the figures for Márgenes Agropecuarios show a much larger increase in investment in wheat production, particularly after 2000. The above data are essential to critically analyze the central idea of the new paradigm of agribusiness, it suggests that innovative entrepreneurs that increase the productivity of their farms would be those who would enjoy higher profitability and thus supplant those farms with less investment/productivity, doomed in the 90s. Soy producers

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were not the most innovative or those who invested larger sums at risk and however, they were those who had higher profitability, and that depended on no fault of their entrepreneurial spirit. The explosive growth of international demand for soy and its derivatives, induction of cultivation by higher world oil plants installed in near Rosario and various stimulus policies were tested by the state determinants of the soybean phenomenon, as opposed to opposite characteristics of the world market for wheat trade.

Even assuming the same entrepreneurial spirit of producers, confirmed by the yields per hectare in the production of wheat and soybeans in the 90s and until 2001, they did not result in higher yields and were accompanied by the breakdown and auction holdings in that decade, while from 2002 gross marginns increased, resulting mainly from a strong devaluation and after 2007, by high international prices.

Agribusiness concept refers to a wide range of production changes, wherein the changes are only one stage 90. The cultivation of soybeans, grain star of the new paradigm, was induced from decades ago, state and large firms industrializing its oil in the 90s, decisions against which the 'entrepreneurial spirit' of producers and engine of change is dwarfed[12].

Consideration should be given the scope of the statement notes that knowledge moves today as an important element to land ownership. Agriculture in which more than 50% of the land is devoted to monoculture of soybeans and is performed mostly using machinery, labor and knowledge outside the owners and/or entrepreneurs in charge of the exploitation, deserves at least one reflection, what new knowledge in agricultural production embody these new entrepreneurs? Could one understand that greater financial knowledge, global trade or other business opportunities, but not those directly related to the direct production of various crops.

Regarding the loss of importance of the land factor must be remembered that the sharp increase in the values of leases in recent years is leading to large employers

[12] Pierri, Joseph and Abramovsky, Marcelo (2011) analyze the role 'inductor' state and multinational corporations in promoting soybean while propose using enclave economy concept to analyze the practice of the soybean production in recent decades.

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innovative, like group Tiling, to consider their abandonment of activity in our country from the high cost of access to land[13]. It also deserves further studies to substantiate the concepts of network enterprise, so the family farm and explain why producers could not 'access to the challenges of new technology' points out some of the work on the issue. In principle, it should be thought that the behavior of producers in the 90s were not free themselves of innovative entrepreneurs, emergencies caused by zero returns and the inability to have enough to buy high value equipment or invest in inputs capital, must have influenced their decisions of their tools, to outsource tasks and search the family multi-activity other sources of income.

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[13] See ´The big players in crisis, with redefinitions and finding alternative´ newspaper La Nación 20/04/2013.

BIOGRAPHICAL ABSTRACT

Please refer to articles Spanish Biographical abstract.

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