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Analysis of the Effects of State Aid on the Development of Algerian Dairy Farms: The Case of National Unemployment Fund (CNAC)

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Abstract: This study is aimed at demonstrating the importance of public investment in developing the dairy sector through support schemes such as the CNAC (national unemployment fund). Fifty-five dairy farms benefiting from CNAC funding were surveyed. The results show that 63% of the beneficiaries have difficulties with the submission and processing of their administrative files. The lack of technical control by the CNAC services was reported by the vast majority of beneficiary farmers (83%). There has been an increase in the number of wage labourers from nine to 20% of the total farm labour force. There has been an increase in the number of farms with a small forage area (0-5 ha). Bovine livestock increased by 12%, the most important breed being the Montbeliarde. More than half of the farmers have increased the amount of concentrates distributed, from an average of 7 to 10 kg per animal per day. Green fodder is also appearing in the form of wrapped silage distributed throughout the year. Milk production increased by 7.3%, from 17.7 litres per cow per day to 19.1 litres per cow per day. Natural breeding is still practised by 42% of farmers, despite the prevalence of artificial insemination. Finally, 54 % of the farmers benefiting from the programme say that dairy production has become unprofitable because of higher production costs. It would be preferable for this mechanism to improve and simplify the administrative procedure and ensure effective follow-up of beneficiary farmers in order to improve the efficiency and effectiveness of CNAC funding.

Keywords: State aid, Dairy cattle, Development, Dairy Farms

Introduction

Since the independence of Algeria, the agricultural policy of the government has been aimed at ensuring the food security of the population through an increase in agricultural production (Bessaoud et al., 2019).

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Agricultural subsidies are one of the public policy responses to the various distortions in the world market that can have an impact on food security. State aid policies have long been applied to the various stages of producing, collecting, processing and consuming milk (CNAC, 2018). As part of these policies, instruments have been in place to support investments in farms and the growth of production. However, since the creation of aid schemes like CNAC, state aid also focuses on creating production units, in our case dairy farms (Boubker, 2016). The aim is to increase the national production of milk in order to meet the growing demand in society and, as far as possible, to reduce the amount of milk powder that has to be imported.

This paper attempts to show the impact of the CNAC scheme on the process of dairy unit creation/expansion and milk yield improvement, also assessing the effectiveness of the scheme's administrative procedure. A normative approach is adopted (Butault, 2004). It consists in analysing the effectiveness of the CNAC compared to the initial objectives set.

Method

Presentation of the Study Region

Tizi-Ouzou covers an area of 2,957.93 km², or 0.13% of the national territory. 80% is mountainous, with an average altitude of 800m (DPSB, 2007). It is a coastal wilaya. It has 70 km of coastline. The landscape of the wilaya is mountainous with more than 50%. Slopes exceed 12% and sometimes reach 25% (DPAT, 2010). The region is known for its low forage production levels. According to DPSB (2019), the Utilised Agricultural Area (UAA) of the wilaya is 98,842 ha. Only 2% of these are irrigated.

The Methodology Used

The study was carried out on 55 dairies that benefit from CNAC subsidies. These 55 farms are located in six (6) municipalities. These communes are dominated by dairy farming. The aim of the survey was to analyse the beneficiaries' assessment of the flexibility of the CNAC scheme and the impact of the funding on the development of the farms. Descriptive statistics were used. The mean values, standard deviations and percentages have been used.

Results and Discussion

The Administrative Procedure

The results show that the financing is triangular and divided as follows: personal contribution: 2%; CNAC: 28% and the bank: 70%. There is no requirement for guarantees on the part of project promoters. Most of the farmers (63%) said that they struggled when trying to apply. In their view, the application process was difficult and time consuming. 50% of project promoters reported waiting between six and ten months to have their proposal validated.

Livestock Buildings

It is worth noting that 80% of the livestock buildings on the farms studied before the programmes were funded had a shed that met livestock standards, while 20% of the farms did not meet livestock standards. Today, there has been a 98% improvement in the quality of livestock housing. Only 2% of the farms do not comply with the standards for animal husbandry.

The Labor Force

Before the programme was funded, only 9% of the enterprises had recruited permanent staff. 8% employed 1 or 2 people and only 1% employed up to 3 people. In 91% of the holdings, however, the workforce is essentially family-based. After CNAC funding, 20% of the holdings reported an increase in the number of permanent employees (1 to 4 employees).

Mechanization

We found that only 32% of farmers owned a tractor before the programmes were funded. For farmers who own large plots of land and grow fodder, tractors are an essential tool. In comparison, 68% of the farmers did not own a tractor due to a lack of financial resources. Mechanisation increased by 15% after the programme was funded, bringing it to 47%. This was due to the purchase of equipment through the scheme and the purchase of equipment by the farmer. The remainder (53%) of farmers do not have a tractor. In general, due to the very high purchase prices, they have either bought another vehicle or have no mechanisation at all.

Farm Surface Area

The changes in agricultural land in different municipalities of the Wilaya of Tizi-Ouzou are shown in table 1. In the Wilaya of Tizi-Ouzou that have been in receipt of funding under the various programmes. According to the results in Table 1, the agricultural area in hectares in the Wilaya of Tizi-Ouzou is equal to 686 ha. Kadi et al, (2007), indicate that the foraging base is low. This is an average of 5.15 ha before the finance of the programmes, then increased by an average of 0.18 after the programmes were financed, giving a total of 710.5 ha.

Table 1. Useful agricultural area per hectare of farms before and after CNAC scheme funding

	0 to 5 ha	5 to 10 ha	10 to 15 ha	15 to 20 ha	20 to 50 ha
% of farms before scheme funding	48	42	6	3	1
% of farms after scheme funding	50	36	9	3	1

In the wilaya of Tizi-Ouzou, the municipalities of Freha, Iflissen, Timizart and Mekla have the largest areas of agricultural land. When compared with the other municipalities, the situation is similar both before and after programme funding. Before programme funding, 48% of the farms had an agricultural area between 0 and 5 hectares; after programme funding, the number of farms had increased by 2%. Some holdings have reduced the number of hectares in use: 42% of holdings with 5-10 hectares have reduced the number of hectares in use by 6%. The sale of land and the change of activity of several farmers are responsible for this reduction. However, it should be noted that 4% of holdings did not report any change after receiving support. It is also worth noting that some farmers do not own any agricultural land.

Cattle Numbers

According to the respondents, we note that the average cattle herd before the finance from the schemes is estimated at 8.96 head, and the average herd in 2021 after the aid from the schemes is estimated at 11.49 head. An average increase by 2.53. In Sétif region, an average of 7.85 animals per farm was reported by Lazereg and Brabez (2019) in a survey of small livestock farmers. Compared to the other regions, the number of cattle in the Iflissen, Feha, Tizi-ouzou and Timizart regions is high. The availability of agricultural land suitable for livestock farming may explain this. Both before and after the programmes, the commune of Freha had the highest number of cattle. The number of cattle per holding before receiving support from CNAC is shown in Table 2.

Table 2. Cattle numbers of farms before and after CNAC scheme funding

Cattle numbers	0 to 20 head	20 to 40 head	40 to 60 head
% of farms before scheme funding	86	10	4
% of farms after scheme funding	75	22	3

The table above shows that 86% of the holdings with between 0 and 20 head of cattle before the programmes were financed have decreased to 75%. This represents a decrease of 11%, which can be explained by the sale and/or death of animals, but also by the change of activity of several farmers. 10% of the holdings which had between 20 and 40 head of cattle prior to the programme experienced an increase of 12% in cattle numbers after the programme. Explained by the ownership of agricultural land that can be used for livestock farming. Also explained by receiving public aid. On the other hand, 4% of the holdings before support showed a decrease of 1%. This can also be explained by the sale or death of animals and the change of activity of several livestock farmers.

Dairy Cows Numbers

Dairy cows are cows bred to produce milk for human consumption. Beneficiaries had an increase in the number of dairy cows from 690 before the programmes to 1,033 after. The average number of dairy cows per beneficiary was 7.76. From these results it can be seen that 83% of the farms which had between 0 and 10 dairy cows before the schemes were funded reduced the number of dairy cows by up to 59%, i.e. a reduction of 24% (Table 3). The sale of dairy cows or their death from disease may explain this.

The sale of dairy cows for slaughter due to reduced milk production is another explanation. There may also have been a change in the type of activity of a number of holdings. Nevertheless, 17% of farms with between 10 and 40 dairy cows have increased the number of dairy cows by up to 41% since receiving funding. This is due to the large areas of arable land in these regions, which enable them to produce enough feed to meet the needs of dairy cows and thus achieve better production. This is also due to the financial support provided by the programmes.

Table 3. Dairy cows numbers of farms before and after CNAC scheme funding

Cattle numbers	0 to 20 head	20 to 40 head	40 to 60 head
% of farms before scheme funding	83	12	5
% of farms after scheme funding	59	35	6

The breed most chosen by farmers before the programmes were funded was the Montbéliard with 40%, followed by the local breed with 17%. Fleckvieh with 6 % and Holstein with 5 %. 8% of the farms surveyed had a mix of Montbéliard, local breed, Holstein and Friesian. 4% had Montbéliard, pie noir, pie rouge and brune de l'atlas.

Feeding

Dairy cow feeding varies from farm to farm. It depends on the forage types available and the season. The basic ration of "green fodder" is distributed in spring on all the farms surveyed. The amount of fodder distributed is higher than at other times of the year.

Concentrates

The concentrates are distributed by farmers to supplement their livestock. An increase in the amount of concentrates distributed by the surveyed farmers before and after the support is shown in Table 4. 54% of the respondents distributed between 70 and 250 kg per day per herd (average of 10 animals). Before the CNAC support, only 34% of the farmers distributed this amount. Before the support, 8% of the farmers distributed more than 250 kg/day per flock. After support, 15% of farmers distributed more than this amount. 13% and 9% of beneficiaries before and after support respectively do not distribute concentrates to their herds because of the high cost of feed or because they do not have dairy cows.

Table 4. The quantities of concentrate distributed before and after the CNAC scheme funding.

Quantity of concentrate distributed per kg/day/herd (10 head on average)	% of farmers before scheme funding	% of farmers after scheme funding
0 kg	13	9
4 to 30	16	10
30 to 70	29	12
70 to 250	34	54
More than 250	8	15

Wrapped Silage

From our survey of farm visits, almost half of the farmers do not distribute wrapped silage to their cattle. This can be explained by the fact that it is not available in certain regions and that it is too expensive.

The Daily Amount of Feed

On the survey farms, the average amount of feed per day before the schemes was funded was 250 kg per day per flock and 25 kg per day per cow. Quantities increased to 350 kg per day per flock and an average of 35 kg per day per cow after the schemes was funded.

Milk Production

Milk production on the surveyed farms varies according to the season and the feed given to the herd. The average varies from 8 litres to 40 litres (figure 1). Analysis of the results obtained on milk production shows that before the schemes were funded, around 14% of farmers had no livestock and therefore no production, 78% of farmers had an average production of 2 to 25 litres and only 8% of farmers had an average production of 25 to 40 litres.

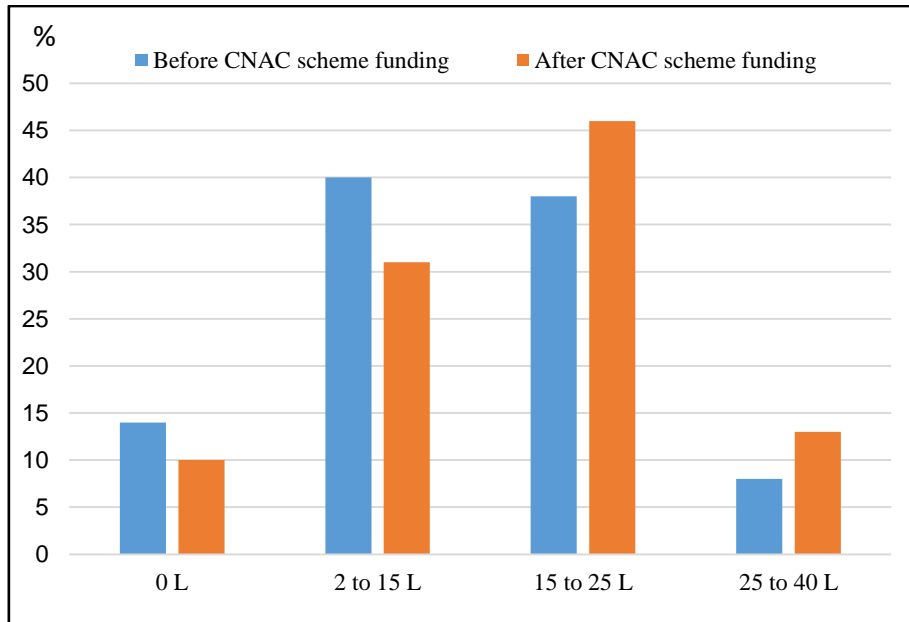


Figure 1. Average milk production on farms surveyed before and after CNAC scheme funding

After the schemes were funded, 10% of farmers stopped farming. In addition, 77% of the farmers have an average production of 7 to 25 litres, and 13% of the farmers have an average production of 25 to 37 litres. This is evidence of the positive impact of scheme funding on agricultural value addition (Ferroukhi et al., 2021).

Breeding Method

Breeding is an important factor in livestock management. It ensures the maintenance and improvement of the farmer's activity. Natural breeding (NB) is the first method of reproduction before the funding of the programmes (Table 5). It is used by 41% of the farms surveyed, followed by both methods (Artificial insemination (AI) and Natural breeding (NB)) with a rate of 38%. After the finance, 42% of the farmers used both methods (AI + NB), while 38% of the farmers used natural reproduction on their farms.

Table 5. Method of reproduction used by farmers

Method of reproduction used by farmers	% of farmers before scheme funding	% of farmers after scheme funding
Natural breeding	41	38
Artificial insemination	21	20
Both methods AI+NB	38	42

Artificial insemination, with a rate of 21% and 20% respectively, is the last reproductive method used both before and after funding. This can be explained by the low success rate of the cows that are mated and by the

cost of this method, according to the farmers questioned. On all the farms surveyed, we found that the average age of the heifers at first service was 18 months, both before and after the funding of the schemes. 27 months is the average age of heifers at first calving.

Profitability of Financing Schemes

Dairy farming is on the rise. According to the 55 respondents and the results of the analysis, 44% of investments are profitable. Despite the 54% whose activity is not profitable, this percentage really shows that livestock farming is developing. This can be explained by the high cost of feed, which is the main problem for all farmers. This is followed by the high cost of veterinary consultations and vaccines, the lack of professionalism and, finally, the unavailability of arable land for livestock farming.

Conclusion

The study shows that the administrative procedures are still relatively slow and difficult to use. This is particularly true for the processing of applications. These difficulties are also reflected in waiting times and the lack of ex-post monitoring of projects by the CNAC services. However, the scheme has a number of advantages, not least the fact that it is open to all project applications from promoters who can demonstrate that they have the necessary skills. The fact that the promoter's contribution to the funding of the project is negligible is also a strength of the scheme. Cattle numbers have increased in the study area. This is reflected in the creation and/or expansion of dairy farms. Milking performance has also improved in relative terms. Increased use of artificial insemination has been observed in reproduction practices. However, the structural problem of a lack of fodder in the area under study continues to be a problem.

Scientific Ethics Declaration

The authors declare that the scientific ethical and legal responsibility of this article published in EPHELS journal belongs to the authors.

Acknowledgements or Notes

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References

- Bessaoud, O., Pellissier, J. P., Rolland, J. P., & Khechimi, W. (2019). *Synthesis report on agriculture in Algeria* (p.82). Montpellier: Support project for the Mediterranean ENPARD initiative. Support program by CIHEAM
- Boubker, (2016). Bank financing of agricultural activities: the case of cattle breeding in the wilaya of Bejaia. *BADR-bank (ztyagence kherrata)*, 51(62).
- Butault, J. P. (2004). *Agricultural support Theory, history, measurement* (p.310). Paris: INRA
- DPAT. (2010). *Department of regional planning and development*. Directorate of the Wilaya of Tizi-Ouzou.
- DPSB de la Wilaya de Tizi-Ouzou. (2007). *Statistical yearbook for the Wilaya of Tizi-Ouzou*.
- DPSB de la Wilaya de Tizi-Ouzou. (2019). *Statistical yearbook for the Wilaya of Tizi-Ouzou* (p.257). Retrieved from <https://www.ummtto.dz/wp-content/uploads/2019/06/Annuaire-statistique-de-la-Wilaya-de-Tizi-Ouzou-Année-2018.pdf>
- CNAC. (2018). *National unemployment fund*. Directorate of the Wilaya of Tizi-Ouzou information services.
- Ferroukhi, S. A., Boumghar, M. Y., & Chehat F. (2021). Analysis of the effects of subsidies on agricultural growth: an attempt to measure the period (2000-2018). *Les Cahiers du Cread*, 37(2),35-65.
- Kadi, S. A., Djellal, F., & Berchiche M. (2007). Characterisation of the feeding habits of dairy cows in the Tizi-Ouzou region, Algeria. *Livestock Research for Rural Development*. 19, 51.

Lazereg, M., & Brabez, F. (2019). Dairy policy and access to the formal market for small livestock farmers in the Sétif region. *Les Cahiers du Cread*, 35(4), 131 – 160.

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