



The advantages of cooperative financing in sugar beet production

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ABSTRACT

In comparison with other branches of crop plant production, the production of sugar beet requires extremely large amounts of working assets, and therefore also necessitates a higher level of input. Thus, great importance is attached to any type of solution, including the various methods of financing, which will enable the costs of production to be reduced. This topic bears particular significance in situations in which there is limited possibility for external resources, primarily bank credit, to be drawn into agricultural production, due to unfavourable assessment of the sector by the financial institutions. The most recent construction developed for the purposes of financing the costs of sugar beet production is cooperative financing. This is a complex system of such a nature as to necessitate the participation, in various forms, of practically every entity involved in the entire process of the production of sugar products. Cooperation between the branches of industry engaged in the production of primary materials for agriculture, producers, processors, insurance companies and banks creates the opportunity for all sugar beet producers working under a production contract to gain access to external sources of funding. Another possibility which emerges is that of financing for producers, primarily those involved in small-scale production, who, on the basis of the client assessment system employed by the financial institutions, are themselves judged non-creditworthy. Cooperative financing operates in such a way as to enable state subsidies also to be included in the system, which lowers the cost of the external capital involved in financing, thus increasing the returns on the internal capital invested. Alongside this, the system retains the major benefits of the financing arrangements now regarded as traditional, including the considerable discounts which can be obtained through purchasing in high volumes, the potential to produce homogeneous products of good quality, and also the facility of the direct discussion and solving of technology-based issues and problems. Cooperative financing relieves the producer of the burden of a substantial proportion of production-related and financial risk and distributes this risk among a number of the entities involved in the production continuum.

(Keywords: cooperative financing, integration, decrease in production costs, distribution of risk, sugar beet)

ÖSSZEFOGLALÁS

A kooperatív finanszírozás előnyei a cukorrépa-termesztésben

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A cukorrépa termesztése más növénytermesztési ágazatokhoz viszonyítva rendkívül forgóeszköz-igényes, ezért magasabb ráfordítási szintet is igényel. Emiatt fontos minden

olyan megoldás, köztük a különböző finanszírozási módszerek is, amelyek segítségével ezen költségeket csökkenteni lehet. Különösen jelentős ez akkor, amikor az idegen források, elsősorban bankhitelek bevonásának lehetősége a mezőgazdasági termelésbe korlátozott, a szektor kedvezőtlen pénzügyi megítélése miatt. A cukorrépa-termesztés költségeinek finanszírozására kidolgozott legújabb konstrukció a kooperatív finanszírozás. Ez olyan komplex rendszer, melyben a cukor termékpálya csaknem minden szereplője részt vesz valamilyen módon. A mezőgazdasági alapanyag-előállító iparágak, a termelők, a feldolgozók, a biztosítók és a bankok közötti együttműködés, minden termeltetési szerződéssel rendelkező cukorrépa termelő számára lehetővé teszi az idegen forrásokhoz való hozzájutást. Lehetővé válik azon termelők –elsősorban kistermelők- finanszírozása is, akiket a pénzügyi intézetek ügyfélminősítési rendszere alapján önmagában hitelképtelennek ítélnék meg. Mindez úgy történik, hogy lehetőség van az állami támogatások rendszerbe való bevonására is, mely olcsóbbá teszi a finanszírozásban részt vevő idegen tőkét, megnövelve ezzel a befektetett saját tőke hozamát. A rendszer emellett megőrzi a "hagyományos"-nak tekinthető finanszírozási megoldások legfontosabb előnyeit, köztük a nagy volumenű beszerzések által elérhető jelentős árengedményeket, a jó minőségű és egyöntetű termékek előállításának lehetőségét, valamint a technológiai kérdések közvetlen rendezését. A kooperatív finanszírozás leveszi a termelő válláról a termelési és a pénzügyi kockázat jelentős részét és megosztja azt a vertikum több szereplője között.

(Kulcsszavak: kooperatív finanszírozás, integráció, termelési költségek csökkentése, kockázatmegosztás, cukorrépa)

INTRODUCTION

In the 1990s the changes which occurred at the financial institutions also exerted a fundamental effect on the agricultural production sector. From the financial aspect one of the most significant characteristics of these processes was that the practice employed by the commercial banks in awarding credit for agriculture underwent essential changes. It has now become a generally expressed fundamental principle of the banking sector that it is only permissible to finance production which attains an appropriate degree of efficiency (Vékás, 1996). As a substantial proportion of agricultural producers do not generate sufficient profit to enable them to work off the liabilities incurred through the use of external funds, the banks are not willing to offer them credit, or at least show no enthusiasm to do so. The slump in production and the narrowing of the range of opportunities for access to credit have also given rise to serious concern with respect to the financing of production processes, among these the availability of working assets (Tenk, 1998).

In researching for this study the author sought to select a branch of production involving high production costs per hectare and characterised by slow recovery of working assets and capital. The extremely high input level of sugar beet production is accompanied by a production period of lengthy duration: eighteen months from the introduction of the first input. This brings to the surface an enhanced form of all the concerns to be anticipated by the management of an enterprise in any branch of production in endeavouring to ensure liquidity and profitability (Fórián, 1998; Koczka, 1998).

In the scope of sugar production as a whole, the involvement of the processing enterprises in the financing of sugar beet production has a history of several decades.

Several forms of prefinancing for production costs have evolved among the various entities involved in the production continuum. With regard to their aims and purposes the individual potential forms concur in a number of respects (*Fischer and Bráth, 1998*).

- in some form or other, these structures pay in advance to the producer the value of the sugar beet to be produced, and relieve the producer of the problem of financing throughout the production period up to the time of final accounting for the produce.
- Gauging of the requirements of the producers enables them subsequently to present a joint approach to markets for input materials (seed, chemical fertiliser, pesticide, the various forms of insurance, and bank credits).
- It is also possible to provide financing for producers who themselves would not be in a position to draw in other external resources (i.e., bank credit).
- Inspected primary materials of outstanding quality are used in the production of the sugar beet; this ensures that products of appropriate quality will be produced and increases the level of security and reliability attained in production.

In 1998 at Magyar Cukor Rt. (the Hungarian Sugar Joint Stock Company) the author participated in the development of a new arrangement termed cooperative financing, which retains the benefits of the 'traditional' financing procedures while at the same time offering advantages in a number of respects both to agricultural producers and to sugar beet processors.

MATERIALS AND METHODS

This evaluation of cooperative financing was performed on the basis of analysis of data for 1998 and 1999. Among the working assets financed, the cost per hectare of seed, pesticide and the chemical fertiliser applied in spring were examined to provide the base for the calculations involved; this analysis covered the period 1996 to 1999, or, in the case of seed, from 1992 to 1999. In each instance the values recorded were taken in relation to the prevailing official purchase prices for sugar beet. The basis of the calculations performed was in each case a production technology recommendation provided by the Kaposvár Sugar Works.

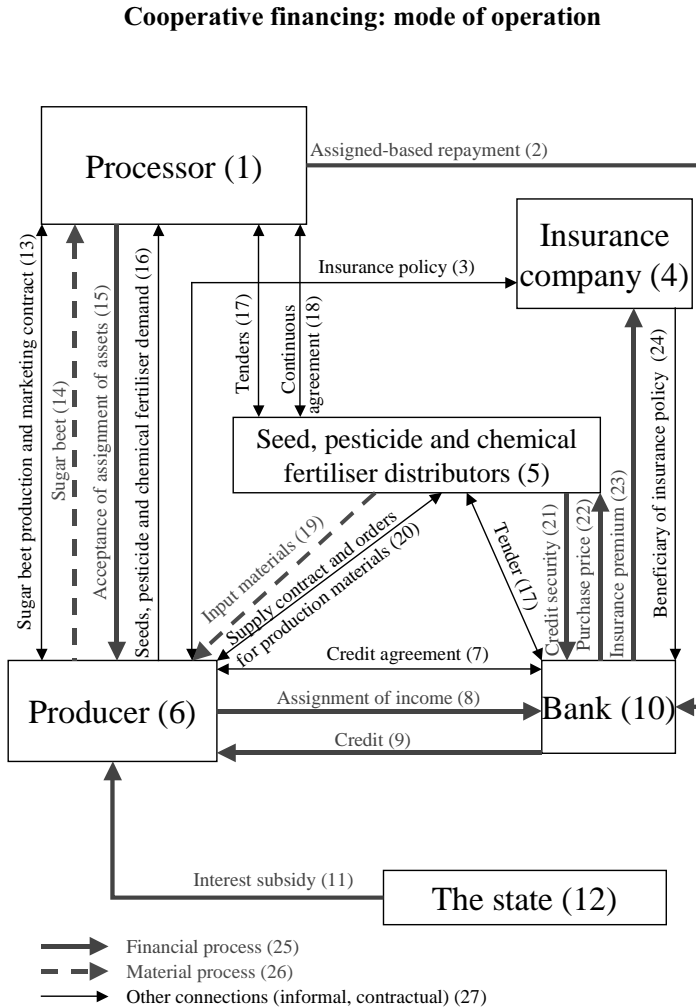
The mode of operation of cooperative financing

The process of cooperative financing is a highly complex one, functioning as illustrated in *figure 1*.

The stages of this process can be summarised as follows.

- The sugar beet producers and processors sign a *contract for the production and marketing of sugar beet* in January or February each year. This contract stipulates the quantity of sugar beet to be produced by each producer, together with the size of the total area of land to be devoted to production, the conditions for delivery, the official purchase price prevailing and the terms of payment to be applied.
- Upon signing this contract the processor, in collaboration with establishments for the genetic improvement of seed and manufacturers of pesticides and chemical fertilisers, draws up a production technology recommendation for the producers. This recommendation includes the types of seeds and the pesticides and chemical fertilisers recommended for use. On the basis of this the producer sets out his requirements of the processor for the individual materials.

Figure 1



1. ábra: Hogyan működik a kooperatív finanszírozás?

Feldolgozó(1), Hiteltörlesztés és kamat az engedményezés alapján(2), Biztosítási szerződés(3), Biztosítótársaság(4), Vetőmag, növényvédőszer és műtrágya-forgalmazó(5), Termelő(6), Hitelszerződés(7), Árbevétel engedményezés(8), Hitel(9), Bank(10), Állami támogatás(11), Állam(12), Cukorrépa Termeltetési és Értékesítési Szerződés(13), Cukorrépa(14), Engedményezés elfogadása(15), Vetőmag, növényvédőszer és műtrágya igény(16), Verseny tárgyalások(17), Folyamatos egyeztetés(18), Input anyagok(19), Termelőeszköz szállítási szerződés, megrendelés(20), Kezesség(21), Vételár(22), Biztosítási díj(23), Biztosítás kedvezményezettje(24), Pénzügyi folyamat(25), Reálfolyamat(26), Egyéb kapcsolat (informális, szerződéses)(27)

- On receiving the requirements for materials the processor totals up the quantities specified. The processor then invites tenders among enterprises dealing with the distribution of the materials required. The subsequent competitive bidding process may consist of two or three rounds, depending on the number of enterprises submitting tenders. Hence, the distributors have the opportunity to modify their bids several times to offer more favourable conditions. The tenders submitted are assessed by the processor. The aspects to be considered in this assessment process are the bid price, reliability, and whether the distributor in question is to undertake a substantial proportion of the financial risk. The enterprise whose tender is successful in the competitive bidding process is then entitled to supply the primary materials required by the producers.
- After the acceptance of the tender the sugar beet producers, in the knowledge of the prices to be charged and taking these into account, set out in a written order the definitive quantities of materials they will require, and sign a *production materials supply contract* relating to these quantities with the distributor; this contract stipulates the terms of delivery and payment to be applied. Should the producers for any reason deem the offer given by the distributor unfavourable, they may, without any form of obligation, take advantage of free choice among offers submitted by other distributors.
- The financing of this process necessitates an extremely large amount of capital. Therefore, the distributor and the processor invite credit tenders from the commercial banks, which otherwise do not include the financing of this sector as one of their express strategic objectives, as they judge the provision of credit to the agricultural production sector to entail risk. However, the combined requirements of the producers represent commerce amounting to several thousand million Hungarian forints, and the financing of this does indeed hold appeal even for the financial institutions. The bank offering the most favourable conditions enters into a credit agreement and establishes a line of credit for the producers, contractually linked to the sugar beet processor, who purchase their input materials from the distributor successful in the competitive bidding process.
- The producer tends to be in a position to repay the credit at the time of final accounting for the sugar beet, which generally takes place in November or December. The collateral security for this is the transfer to the bank of the sales returns from production, payment of which is received and verified by the processor with consideration for the principle of preferential right. Therefore the amount remaining from the sales returns on the sugar beet produced after deduction of the financial obligations of the producer to the processor can be assigned in its entirety to the repayment of the credit, since this has priority over every other liability. The second collateral security for the repayment of the credit is that the distributor provides a guarantee to the bank for the repayment of the credit taken on by the producer, thus undertaking the risk for the entire financing process.
- The third collateral security for the repayment of the credit is the insurance policy taken out by the producer for the area of land to be devoted to sugar beet production and for the yield of this land. This insurance must cover five main risk factors: damage due to frost, hail, soil cracking, sandstorm or beet root weevil (*Bothynoderes punctiventris*). The beneficiary of the insurance policy is the bank; thus, in the event of any such damage or loss the amount paid in compensation serves the purpose of repayment of the credit. The insurance premium is transferred from the line of credit.

- Depending on the producer, the amount involved in the credit agreement varies between 40 and 50% of the sugar beet sales returns anticipated. The line of credit may only be used for the purposes of purchasing seed, pesticide or chemical fertiliser from the distributor or for taking out insurance, to take place with the authentication of both the processor and the distributor.
- The producer is entitled to take advantage of a state subsidy for the credit taken on, in the form of a *one-year term interest subsidy for working capital credits*. In 1999 the interest subsidy level was 40% of the base rate, set by the central issuing bank, which was prevailing on the date on which the credit agreement was signed. This subsidy may be drawn upon after the bank has charged interest, on presentation of certification of such charges.
- The process is subject to continuous inspection and monitoring by the processor and the distributor, who also agree on the course taken. This involves attention to monitoring the anticipated development of the produce and the rate at which the line of credit is utilised, for the purpose of ensuring that repayment of the credit is secure and that, should they be necessary, interventional measures might be taken without delay.

RESULTS AND DISCUSSION

The advantages of cooperative financing can be grasped through evaluation of the changes in the basic material costs per hectare financed (seed, pesticide and chemical fertiliser applied in spring). *Endeavours to reduce costs can be seen to be of outstanding significance on consideration of the fact that the income elasticity of any reduction in production costs can be estimated at three to four times the original amount in the case of sugar beet. Hence, each one per cent cost saving achieved on the expenditure side of the balance sheet results in an increase of three to four per cent in income, if all other conditions remain the same.*

In this cooperative financing scheme the accessible credit was made available by the Raiffeisen Unicbank, which submitted the successful tender in the competitive bidding process. This credit attracted interest of 18.75% per year in 1998 and 16.75% in 1999. Apart from the interest the credit was not burdened by commission for the provision of the credit or any other bank charges. The bank only charged interest on amounts transferred from the credit account. On the date the credit was taken on the base rate set by the central issuing bank stood at 18% for 1998 and 16% for 1999. Thus, after the 40% reduction arising from the state interest subsidy the net credit interest paid by the producers was 11.55% per year in 1998 and 10.35% per year in 1999. In the course of the calculations involved in this study the author used interest charges for the above values related to the financing period.

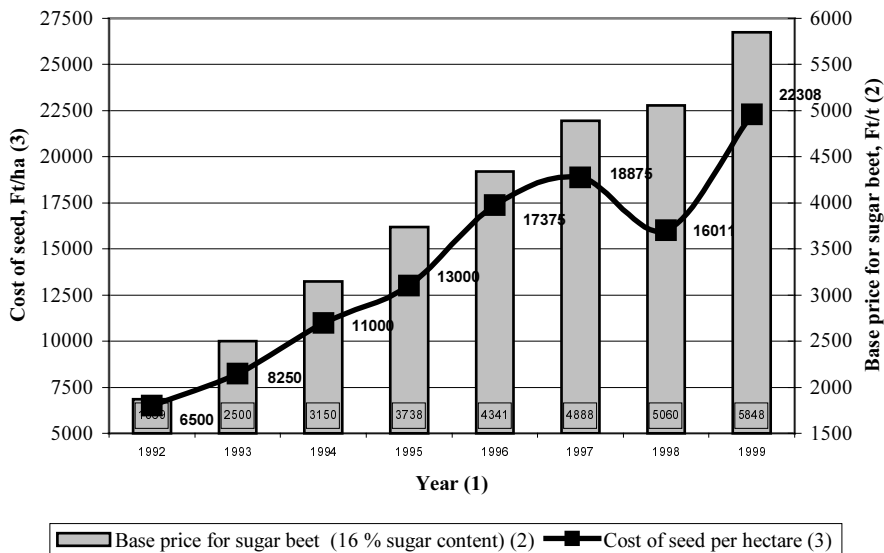
Seed

In accordance with the production technology recommendation, the quantity of seed to be sown per hectare was 1.25 U units. The financing period extended from the purchase of the seed to the time of final accounting for the sugar beet, which amounted to seven months.

The annual increase in the cost of seed per hectare in the period studied, i.e. from 1992 to 1999, was lower in total than the rise in the base price of sugar beet of 16% sugar content (figure 2).

Figure 2

Changes in cost of seed per hectare



Source (Forrás): Own calculations based on Kaposvár Sugar Works, owned by the Hungarian Sugar Co. Ltd. (Magyar Cukor Rt. Kaposvári Cukorgyára alapján saját számítások)

2. ábra: A hektáronkénti vetőmagköltség alakulása

Év(1), Cukorrépa alapár (16%-os cukortartalomra)(2), Hektáronkénti vetőmagköltség(3)

A period which can be considered particularly favourable was 1998, when, by the effect of cooperative financing, the cost of seed per hectare proved lower than that recorded in 1997, even when taken at nominal value. Another reason for this decrease in cost is that the sugar works sites in which Agrana holds a financial interest have coordinated their purchases among themselves since 1998; thus, the seed requirements not only of sugar beet producers based in or near Kaposvár but of all the producers in the Transdanubian region have been combined. High-volume purchase has also exerted a favourable effect on the prices paid for basic materials. A further reason for the lowering of prices is that, due to the reduction in the total area of land devoted to sugar beet production in the country, the potential for the sale of this type of seed is now limited; therefore, to avoid market loss the seed producers have found themselves in the position of giving substantial discounts in competition with each other.

Pesticide

The pesticides included in the production technology recommendation and the application dosages for these are given in *table 1*.

Table 1

Production technology recommendation for pesticides

Pesticide (1)	Type (2)	Dose: litre/ha or kg/ha (3)
Marshall 25 EC	soil disinfectant (4)	2.0
Betanal Progress	weed killer (5)	3.5
Dual 960 EC	weed killer (5)	2.0
Flirt	weed killer (5)	6.5
Lontrel 300	weed killer (5)	0.3
Brestanid	fungicide (6)	0.5
Tango	fungicide (6)	0.8
Kumulus S	fungicide (6)	6.0
Nopon 11 E	oil additive (7)	2.0
Thiodan 35 EC	insecticide (8)	1.5

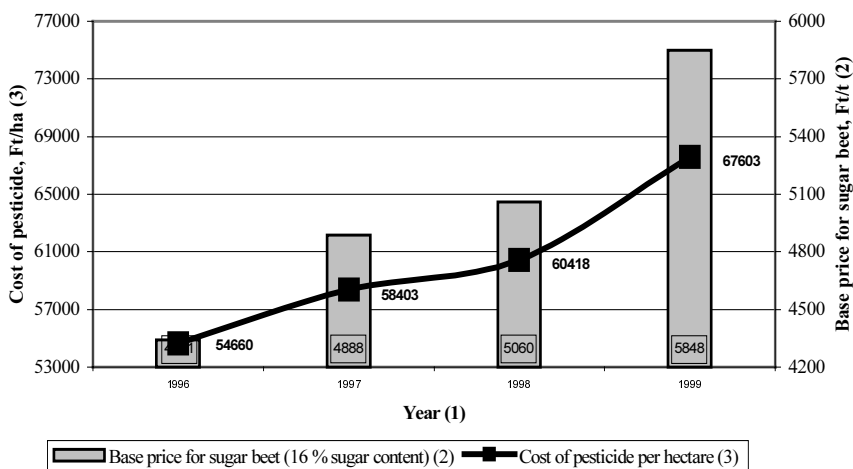
Source (Forrás): Kaposvár Sugarworks, owned by the Hungarian Sugar Co. Ltd. (Magyar Cukor Rt. Kaposvári Cukorgyára)

1. táblázat: Technológiai ajánlás a növényvédelemre

Növényvédőszer neve(1), Növényvédőszer típusa(2), Dózis liter/ha, kg/ha(3), Talajfertőtlenítő szer(4), Gyomirtó szer(5), Gombaölő szer(6), Olajadalék(7), Rovarölő szer(8)

Figure 3

Changes in cost of pesticide per hectare



Source (Forrás): Own calculations based on Kaposvár Sugar Works, owned by the Hungarian Sugar Co. Ltd. (Magyar Cukor Rt. Kaposvári Cukorgyára alapján saját számítások)

3. ábra: A hektáronkénti növényvédő szer költség alakulása

Év(1), Cukorrépa alapár (16%-os cukortartalomra)(2), Hektáronkénti növényvédő szer költség(3)

The treatments listed enable the producers to ensure optimal crop protection for the sugar beet produced: this protection consists of disinfecting the soil prior to seed sowing (performed only once annually), weed control (three times), insect pest control (twice) and fungal disease control (twice). *As with the cost of seed, the annual rise in the cost of pesticide per hectare proved not as great as the increase in the base price of sugar beet of 16% sugar content in the period from 1996 to 1999 (figure 3).*

In contrast with the tendency observed in the case of seed, there was no decrease in the nominal value of the prices for pesticides from 1997 to 1998. This can be attributed to the fact that the bargaining position of the processors in discussion with the large-scale pesticide manufacturing companies was considerably weaker than when they were purchasing seed.

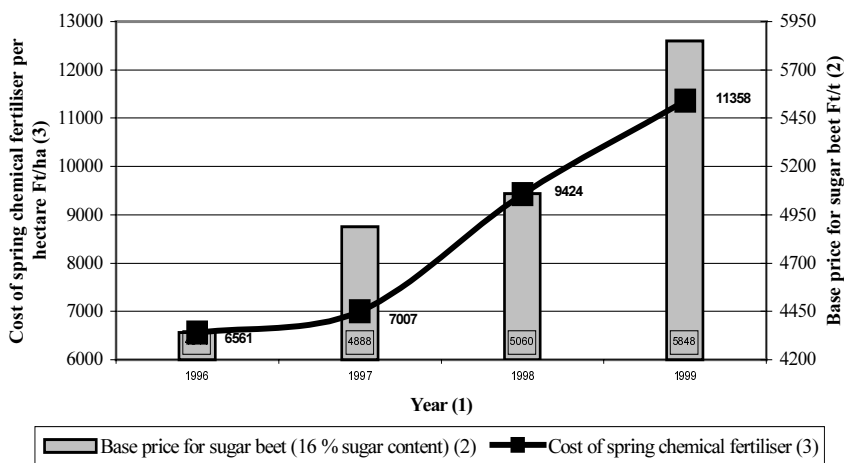
Chemical fertiliser

Of the chemical fertilisers applied, prefinancing was possible only for the fertiliser applied in spring. The production technology recommendation suggested that 500 kg complex fertiliser of NPK 8/16/30 composition be applied in the autumn, and 250 kg *Pétisó* (27% nitrogen, 7% calcium carbonate, 4.5% magnesium carbonate) be scattered in the spring. In terms of active constituents this total quantity contains 107.5 kg nitrogen, 80 kg phosphorus and 150 kg potassium.

In a manner similar to that experienced with the costs related to seed and pesticide, the annual rise in the cost per hectare of the chemical fertiliser applied proved smaller than the increase in the base price of sugar beet of 16% sugar content in the period from 1996 to 1999 (figure 4).

Figure 4

Changes in cost of spring chemical fertilizer per hectare



Source (*Forrás*): Own calculations based on Kaposvár Sugar Works, owned by the Hungarian Sugar Co. Ltd. (*Magyar Cukor Rt. Kaposvári Cukorgyára alapján saját számítások*)

4. ábra: A hektáronkénti tavaszi műtrágya költség alakulása

Év(1), Cukorrépa alapár (16%-os cukortartalomra)(2), Hektáronkénti tavaszi műtrágya költség(3)

This graph shows clearly that the increase from 1997 to 1998 in the cost per hectare of spring application of fertiliser on the sugar beet crops exceeded the rise in the base price of sugar beet. This was partly due to the fact that in the above period the official purchase price for sugar beet was only 3.5% higher than that prevailing in the previous cycle, and partly because at the time of purchase the bargaining position of the producers in discussion with the chemical fertiliser manufacturers was even weaker than that experienced when purchasing the pesticides. By 1999 this process, clearly unfavourable to the producers, had been brought to a halt; thus, with respect to the four years studied the increase in the official purchase price for sugar beet exceeded the rise in the cost per hectare of the application of fertiliser in spring.

CONCLUSIONS

The primary objective of this study was to present the first results obtained with cooperative financing, a recently initiated financing arrangement. The introduction of this procedure into sugar beet production has confirmed expectations and has provided a number of advantages both to producers and to processors. These advantages can be summarised as outlined below.

- *The entire sphere of sugar beet producers working under production contracts can become involved in the financing process.* It also becomes feasible to finance producers, primarily those engaged in small-scale production, who, on the basis of the client assessment system employed by the commercial banks, are themselves judged non-creditworthy. Through this process the banks will become better acquainted with the producers, and it is not beyond the scope of the imagination that in future they might allocate some producers to more favourable categories, thus creating the possibility that producers might arrange their requirements for other types of financing directly with the banks.
- The combination for purchasing of the basic material requirements of the producers creates the opportunity for all the advantages of high-volume purchases to be exploited, principally for significant discounts to be obtained.
- The process of inviting tenders results in substantial improvements in the conditions for the supply of basic materials, the prices charged and the conditions for the provision of credit.
- The production technology recommendation drafted by the processor provides the potential for homogeneous products of good quality to be produced, which is an important aspect with regard to processing.
- Financing is ensured for approximately half of the costs of production up to the end of the working asset cycle, i.e. until the sales returns materialise.
- *The state subsidies available lower the cost of any external capital to be drawn in, while at the same time leading to an increase in the returns on the internal capital invested.*
- The producers maintain direct contact with both the distributor and the processor, which facilitates rapid and efficient specialist consultation and advice.
- *The production-related risk and the financial risk involved are distributed among a number of the entities involved in the production continuum. Part of the production-related risk is transferred from the producer to the insurance company, while a large proportion of the financial risk is taken on by the distributor.*

- *All aspects considered, cooperative financing offers an opportunity for producers which, besides enabling greater profitability to be attained in production, is also accompanied by the possibility that a more favourable image of the producers' sphere might evolve in the perception of the financial institutions which make external resources available.*

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