

Achieving a dream in the agricultural sector

Agronomist Mike Arce looked at his property from the terrace of his house at the foot of the hill and remembered how, at the end of the 1980s, he had to sell it and liquidate his holdings in Huaral (agricultural zone on the coast north of Lima) in order to save his life because of the terrorism that was rife in Peru at that time.¹

Twenty years later, he returned to the same area and bought 30 hectares² of agricultural land (Photo1), investing almost everything he had in this acquisition with the dream of developing some cultivation which could support him for the rest of his life without worries. While he drank the iced cranberry juice prepared by the harvest foreman, he thought about how he could pay off the loans that were coming due at the beginning of 2017 since his holdings were not liquid and he ran the risk that bank would foreclose on the property.

History of the company

Mike Arce founded a sole proprietorship in the year 2000 and opted, for tax purposes, to operate under the Law of Promotion of the Agrarian Sector - Law N° 27360 (see Exhibit 1). Fifty-five years old at that time, Mike was a man with great vitality who had always worked independently and profitably, finding business opportunities either in agriculture or in exporting and importing products. At one point, he even bought a cargo plane to transport meat from Argentina to Peru and Colombia.

Making the acquired land productive was more difficult than he expected, because initially he did not get the capital to make necessary investments. To survive, he leased small lots to other farmers. From time to time, he invested in some agricultural initiative providing him some liquidity to pay off debts and make further improvements in the land. He managed over time to level the fields, build a water reservoir, build a warehouse and a small house at the foot of the hill, and implement a system of drip irrigation in a third of the land.

However, that was not his dream... Mike dreamed of having fully planted fields with a permanent crop that would yield a constant income. He wanted to have a processing plant that would allow him to deliver his products ready for export. He wanted to produce agricultural byproducts of that crop and, of course, modernize all equipment, as he believed it necessary in order to achieve greater profitability.

In the year 2014, a few Spanish investors proposed planting blueberries. Cultivation had been very successful in other countries, so he partnered with them to plant two hectares of blueberries and created the company AGEX S.A. Mike Arce had a 25% stake, providing the ground to cultivate the crop in usufruct (the legal right to use someone else's property) while the Spaniards put up capital amounting to US\$ 100,000.

¹ The age of terrorism in Peru occurred between 1980 and 2000, because of the escalating armed subversive groups established in the Center and South of the country who sought to overthrow the Peruvian Government and establish a Communist Government. A large number of victims of attacks marked this era. After the capture of its leader, in 1992, some subversive groups, in partnership with drug traffickers, followed, creating conflicts with the armed forces and the police in the Central-Eastern area of the country, called the zone of the VRAEM where there are 20 thousand hectares of coca crops.

² Conversion: 1 hectare=2.471 acres

Brief history of cultivation

Blueberry production increased when the health benefits of consuming them were identified. It is a highly nutritious fruit, source of antioxidants that maintain a healthy brain and aid in protecting against cardiovascular diseases and diabetes. In addition, they prevent and treat diseases related to the urinary tract, improve memory function, maintain healthy eyes, and postpone the effects of old age (Bevilacqua, 2014).

According to the same author, the blueberry "is a shrub originating from the forests of the North American and European continents that produces a sweet and sour blue berry 1.5-2.5 cm in diameter size and 1.5 to 4 grams in weight. A group of flavonoids called anthocyanin that have powerful antioxidant power causes the color of blueberries. Blueberry skin is firm, and the pulp is juicy and aromatic. The fruit is delicate, perishable and matures irregularly. It requires several weeks of harvest and is labor intensive. In addition, blueberry is a short-lived fruit that should be packed cold and transported under certain temperature conditions for its adequate conservation". (Photo 2).

Establishing one hectare of blueberries in Peru had an average cost of \$30,000, where the main expenditure was in the plants themselves, without considering the qualities of the land. A minimum area of arable land to generate profit was three to ten hectares. Returns depended on how the cultivation was handled and the number of tons that could be produced (Salas, 2017).

Some estimates indicated that they could harvest 15 tons per hectare. If prices stabilized in about four or five years, returns to the producer were projected between \$70,000 and \$80,000 per hectare. These estimates would fall or rise according to the tons produced and international prices (Cilloniz, 2012).

To Mike, this looked like a good development opportunity, but he had to define carefully the commercial window to enter with his production. In the case of Peru, this window was just when the United States production finished and production had not yet started in Argentina and Chile, which was between the months of September and October (Cilloniz, 2012).

The problems began

At the end of 2014, with the investment of US\$ 100,000 from the Spanish, Mike planted two hectares of blueberries that would be ready for harvesting in September 2015. The cost of deploying a hectare of blueberries was greater than the average expected, amounting to US\$ 43,996 per hectare (table 1) since the plants are seeded in bags to maintain sufficient substrate. He devoted himself only to blueberries and did not invest in any kind of cultivation, only leasing land.

Table 1

Cost per hectare	US\$
Plants	26,786
Bags	3,500
Substrates	9,425
Laborers x one time	1,905
Irrigation hoses	2,381
	<u>43,996</u>

Source: Proprietary information provided by the owner

At the end of that year, Mike's son, Junior Arce, returned to Peru after ten years abroad to support his father in the business that he had launched. An agricultural engineer, Junior had worked abroad as a business manager and began working in the organization and land management.

Mike felt that having up-to-date and timely accounting information would allow him to make better decisions, but neither he nor Junior knew accounting nor the rules to be applied for drawing up the financial statements of a company.³

Junior's colleagues were working in the agricultural sector at that time and told him that they would support him as much as they could. Thus, he obtained financing through his contacts of US \$300,000, from the SomosAgro Bank, for:

- Planting five additional hectares of blueberries
- Beginning construction of a processing plant (US \$150,000)
- Installing a main power supply (US \$15,000)
- Building other facilities such as stores, offices and services for workers (US \$8,000)

These investments allowed them to comply with international standards to obtain the necessary phytosanitary certificates and to certify products for export. The Arces made this investment in a specific way, not in association with AGEX S.A. The conditions of the loan were five years at an interest rate of 13.5% per annum and a grace period of one year. They received the first disbursement in December 2014 (see Exhibit 2).

In September of 2015 they completed the construction of the processing plant with a capacity of processing 16,000 kilograms per month. They had to make an emergency purchase of a generator at a cost of US \$8,000 because the load of the main power supply was insufficient to supply the plant. Mike and Junior projected an income of US\$ 0.50 per kilogram of product processed (see Exhibit 3).

In the year 2015, climatic conditions and crop management allowed them to export 2,500 kilograms of blueberries per hectare. That year, international prices fluctuated between \$7.00 and \$12.00 per kilo. The cost of the crop management per hectare was \$7,500. (Koo, 2015)

Sales were made at international prices but FOB shipping⁴, which meant that they had to deduct seller commissions (between 8% and 10%), insurance, air freight, and others ranging from US\$ 2.00 to \$3.00 per kg. In addition, internal processing, packing and freight costs amounted to US \$1.10 per kg. All production was committed for export to one client, which honored the commitment.

3 The International Financial Reporting Standards (IFRS) are accounting standards issued by the International Accounting Standards Board (IASB, by its acronym in English) in order to standardize the application of accounting standards around the world, in a way that is globally accepted, understandable and of high quality. The IFRS requires that information in the financial statements is comparable and transparent, which helps investors and participants in world capital markets to make their decisions

4 The terms FOB shipping point and FOB destination have significance in accounting because they determine the following: when a sale of goods and the related receivable occur, when the purchase of goods and the related liability occur and whether the seller or buyer pays the shipping costs.

In March 2016, Mike and Junior requested a new loan of \$300,000 from the SomosAgro Bank (see Exhibit 2), with which they finished installations and the processing plant (Photo 3), rectified the load from the main power supply at a cost of \$12,000 and used \$35,000 to pay off the first installment of the previous loan.

In 2016, weather conditions were not conducive and substrates used for the planting of the plants were not adequate, so they were unable to reach the 8,000 kilograms of blueberries per hectare envisaged. Management of the seven hectares of crops allowed them to export 3,000 kilograms of blueberries per hectare and international prices fluctuated between \$3.00 and \$5.30 per kilogram. The cost of crop management per hectare was increased to US \$8,200 (table 2) and the harvest costs per hectare rose to US\$ 2,700 annual.

Table 2

Cost per hectare/annual	US\$
Pruning	893
Substrate (repositioning) 15%	1,414
Irrigation hoses (repositioning) 3%	71
Plants (repositioning) 3%	804
Bags (repositioning) 3%	105
Fertilizer	1,702
Insecticide and Fungicide	1,872
Laborers	1,339
	<u>8,200</u>

Source: Proprietary information provided by the owner

In December 2016 the financial statements presented to the Bank showed promising results (see Exhibits 4 and 5). In March 2017, the repayment of bank loans amounted to US\$100,000 (see Exhibit 2) and Mike didn't have the money to pay the fees.

He decided to review the figures and make an inventory of what the company had (Exhibit 6), but he wondered if the financial statements would be correct and complied with international regulations (Exhibit 7).⁵

The Spanish investors owed him at the end of 2016; the only account receivable that the Arces had for the processing services for the production of the two hectares belonging to AGEX S.A. In addition, they wanted to sell their share of the company (blueberry plants) as they were not prepared to keep investing after the bad results of the 2016 campaign.

⁵ The conceptual framework of the IFRS states that: "general purpose financial reports provide information about the financial position of an entity that reports, which is information about the entity's economic resources and the rights of creditors against the entity that reports". The financial statements of Mike reported income from crops on leased land, so it did not comply with this premise. IAS 41-Agriculture, also applies to "agricultural products, which are products obtained from biological assets of the entity, but only up to the point of harvest. Thereafter they are applying IAS 2-inventories or other rules relating to products". In the year 2015, modifications to this rule indicate that production plants (in this case, the Blueberry plants) must be governed for their valuation according to IAS 16 - property, plant and equipment. (MEF, 2017)

Seeking solutions

Mike wanted to see his dream come to reality, have the business operating and generating a minimum monthly income of \$5,000, but his son Junior was very concerned by the results of the business. Junior thought at some point that it would be better for Mike to sell the land, settle his debts and live peacefully on returns from interest on a fixed-term deposit or a mutual fund.⁶

Mike continued renting the hectares of unused land and operating the plant only to process its production and that of the two hectares of the Spaniards, from September to December. The rent of land had generated between \$850 and \$1,100 per hectare per season for 6 months from April to September, lowering to \$650 to \$850 per hectare per season for 6 months from October to March.

Revenues only had managed to cover costs and pay half the debts. Mike had to decide what to do. Could he generate more revenue if he enlarged the area of blueberry cultivation? Could he meet his financial obligations? Could he achieve his much-desired annual income of US\$60,000?

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⁶ The annualized return on mutual funds for 2016 was a 10.6% and profitability term deposits averaged 8.5% (Zevallos, 2017).

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Photo 1



Panoramic view of the property

Photo 2



Blueberries

Photo 3



Processing and storage plant

Exhibit 1

Ley de Promoción del Sector Agrario - Ley N° 27360 (Law for Promotion of the Agricultural Sector – Law #27360)

The following natural or legal entities required to comply with the Law for Promotion of the Agricultural Sector – Law #27360 include: those who are engaged primarily in farming or raising animals, legal persons who are engaged primarily in agro-industrial activities outside the Province of Lima and the Constitutional Province of Callao whenever they use primarily agricultural products produced directly or acquired from persons who develop crops or raise animals in areas where such products are produced. It is understood that the beneficiary performs mainly farming activities, breeding, and/or agribusiness when net income for other activities not covered by the benefits established by the law do not altogether exceed 20% of net projected annual revenues.

The beneficiary subjects have the right to apply the 15% rate for taxable income on their income in the third category. In addition, according to the tenth transitional and final provision of the TUO of the income tax act, the subjects covered within the scope of the benefits that are in the situations provided for in subparagraph (b)) of article 85 of the Tax Law to income shall, on its payment to account, apply the rate of 1% on its net income in the same month. In the case of loss of the benefits established by law, taxpayers must make monthly payments of income tax according to the regulations of the general scheme of the referred case No. 1 solution determination of the payment of income tax. Considering that the company had no net taxable income in the year prior to 2009, that corresponds to a payment of 2%,; when a company is duly entitled to receive the benefits of the law N° 27360, apply the 1% rate for payment to the income tax account and not the rate of 2%. In terms of VAT, the above assets are exempt from VAT according to Appendix I of the TUO of the VAT law, therefore there is no payment of VAT.

Note: Excerpted from the article posted in Actualidad Empresarial, in August 2009, by Josué Berna

Exhibit 2 – Schedule of loans (in dollars)⁷

		2016		2017		2018		2019		2020		2021		
	Desembolsos	Amort cap	Intereses	Amort cap	Intereses	Amort cap	Intereses	Amort cap	Intereses	Amort cap	Intereses	Amort cap	Intereses	
Primer Préstamo														
	Dec-14	32,469	1,623	4,500	3,247	4,213	8,117	3,781	8,117	2,669	11,364	1,557		
	Dec-14	31,796	1,590	5,981	4,769	4,114	6,359	3,485	7,949	2,614	11,129	15,372		
	Jan-15	95,788	4,789	14,550	14,368	12,430	19,158	10,468	23,947	7,874	33,526	4,606		
	May-15	155,081	23,485	29,637	26,762	17,360	30,292	13,830	34,231	9,891	40,312	5,272		
	Total	315,134	31,487	54,668	49,146	38,118	63,926	31,563	74,244	23,047	96,331	26,807		
Segundo Préstamo														
	Mar-16	122,818	-	-	-	6,141	24,532	18,423	23,028	30,704	19,392	30,704	13,412	36,845
	Mar-16	181,843	-	-	-	9,092	34,728	27,276	34,095	45,461	28,712	45,461	19,858	54,553
	Total	304,661	-	-	-	15,233	59,259	45,699	57,124	76,165	48,104	76,165	33,270	91,398

Source: Proprietary information provided by the owner.

⁷The first loan was made in dollars. The second in soles. Soles is the official currency of Peru and the exchange rate at the time was S/3.36 per dollar.

Exhibit 3 - Processing Plant Operations

Processing capacity per month (kg)	16,000
Assembly services US\$0.50/kg	
	US\$/month
Electricity	1,000
Personnel (6 people)	4,000
Consumables	250
	<u>5,250</u>
Cost per kilo	0.33

Source: Proprietary information provided by the owner

Exhibit 4 – Financial Statements data

	2016	2015	2014
	US\$	US\$	US\$
Current assets	116,817	74,413	445,082
Long term assets	2,388,964	2,116,022	1,511,706
Liabilities	588,308	307,918	159,226
Equity	1,917,472	1,882,517	1,797,562
Sales of agricultural products*	382,792	451,722	270,903
Gross profit	96,971	338,623	148,997
Operating profit (margin)	63,787	336,179	123,048
Financial expenses	56,845	29,824	1,038

*See Exhibit 6 for details on 2016 sales

Exhibit 5 - Sales breakdown 2016 (in soles) presented to the bank ⁸

	Ha	Kg/ha	Price/kg	Income	Cost/ha	Cost
Corn	7	20,000	1.00	140,000	10,000	70,000
Blueberries	7	3,000	10.08	211,680	30,000	210,000
Purple corn	7	8,500	3.00	178,500	15,000	105,000
Watermelon	3	26,000	1.00	78,000	16,000	48,000
Melón	4	25,000	0.90	90,000	15,000	60,000
		Crates/ha	Price/crate			
Pepper	7	3,000	12	252,000	20,000	140,000
Tomato	7	4,000	12	336,000	25,000	175,000
				1,286,180		808,000

Source: Information provided by the owner.

⁸ Soles are the official currency of Peru. As of December 2016 the Exchange rate was 3.36 soles per dollar.

Exhibit 6 – Additional data

Cost of Operations	US\$/month
Salaries	7,935
Transportation	354
Water	167
Land	83
Internet	60
Electricity	50
	8,649

LONG TERM ASSETS VALUATION	US\$
30 ha Land	1,276,011
70,000 Biloxi blueberry plants 9.92 US\$ per plant	694,400
150,000 Processing plant	150,000
Square meters of stores and 300 offices 700 US\$ per square meter	210,000
Square meters of personnel 80 housing 700 US\$ per square meter	56,000
Furniture and Equipment	751
Computer and printer	1,802
TOTAL	2,388,964

Source: Proprietary information provided by the owner.

Exhibit 7

Amendments to the accounting standard on biological products

June 30, 2015, the Council of international standards of financial reporting ("IASB"), issued some modifications to IAS 41, accounting standard related to agricultural activity. These changes went into effect January 1, 2016; However, there were few companies in Peru that had already implemented them or were in the process of doing so, taking into account that the annual financial statements of December 31, 2016 must have been submitted in accordance with the amended IAS 41.

In this respect, the previous IAS 41 required that all biological assets (including production plants or bearer plants), related to agricultural activity is measured at fair value less selling costs, based on the principle that its biological transformation processes (growth, degradation, production, and procreation), are better reflected by this value; However, the IASB noted that this form of measurement of production plants did not necessarily go hand in with the expectations of the users of the financial statements.

In response, the IASB decided to issue these amendments through which bearer plants should be accounted for in the same way as a fixed asset under IAS 16 "Property, plant and equipment", mainly due to the following:

- The use of mature plants (available to produce agricultural products), is similar to the use of a machine to manufacture goods;
- When a plant is mature and is fully developed, its biological transformation is already significant in the generation of future economic benefits; and
- Because bearer plants are used only to generate products in various periods and beyond that time are routinely taken off line, the only significant future economic benefits from these plants arise from the sale of agricultural products they generate.

The amendments to IAS 41 are intended to respond to the needs and concerns of the users of the financial statements and, as we have seen above, their impact will be highly relevant in a sector which is one of the engines of the Peruvian economy and that has significant influence in all its micro and macroeconomic variables; therefore, companies that engage in or are related to the sector agriculture, shall take all necessary measures to implement these changes in IAS 41 during the second half of the 2016, December 31 of that year and the next coming years because its impact is not only on accounting, but it also affects the main processes of the companies, internal control, information systems and management report business, and tax planning, among others.

Comparativo del reconocimiento y medición de las plantas productoras y productos agrícolas

Para plantas productoras	NIC 41 anterior	NIC 41 modificada (vigente desde 1 de enero de 2016)
Reconocimiento y medición inicial	<p>Las plantas productoras se miden junto con los productos agrícolas (en una sola cuenta).</p> <p>Las plantas productoras se miden al valor razonable menos los costos de venta.</p>	<p>Las plantas productoras se miden por separado de sus productos agrícolas (en dos cuentas).</p> <p>Las plantas productoras se miden al costo acumulado hasta su maduración (cuando se encuentra disponible para su uso: producción).</p>
Medición posterior	<p>Las plantas productoras se miden en conjunto con los productos agrícolas hasta el punto de cosecha (en una sola cuenta hasta el punto de cosecha).</p> <p>Al final de cada ejercicio las plantas productoras se miden al valor razonable menos los costos de venta, con cambios reconocidos en los resultados del ejercicio.</p>	<p>Se tendrán dos opciones de medición:</p> <p>a) Modelo del costo: Costo menos depreciación acumulada menos deterioro de valor, con los cambios reconocidos en resultados.</p> <p>b) Modelo de revaluación: Valor razonable en cada fecha de revaluación menos depreciación acumulada menos deterioro de valor, reconocidos en resultados y en otros resultados integrales (y en la cuenta patrimonial de revaluación).</p>
Al final de cada ejercicio antes de la cosecha	Los productos agrícolas se miden junto con las plantas productoras.	Los productos agrícolas se miden por separado de las plantas productoras y se miden al valor razonable menos los costos de venta.
En el momento de la cosecha o recolección	Los productos agrícolas se miden por separado de las plantas productoras y se miden al valor razonable menos los costos de venta. Después de su cosecha o recolección, los productos agrícolas se tratarán de acuerdo con la NIC 2 "Inventarios"; es decir, al costo o al valor neto de realización, según cual sea el menor.	

Note: Article published in the Ernst&Young blog, PERSPECTIVAS PERU EY, July 13, 2016 by Oscar Mere. Chart available only in Spanish, but you could also review this link: [https://www.ey.com/Publication/vwLUAssets/IFRS_Developments_Issue_84:_Bearer_plants_-_the_new_requirements/\\$FILE/Devel84-Agriculture-July2014.pdf](https://www.ey.com/Publication/vwLUAssets/IFRS_Developments_Issue_84:_Bearer_plants_-_the_new_requirements/$FILE/Devel84-Agriculture-July2014.pdf)