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PLANTING THE FUTURE: CHILE’S CRUSADE FOR AGRICULTURAL PROSPERITY

Luis A. Arcentales

Land sustains humankind, its produce constitutes the main richness of the State...

— Wen Ti, Chinese Emperor, Second Century, B.C.

Introduction

Economists disagree about the extent to which an efficient agricultural basis can stimulate economic growth in developing nations, given that favorable natural conditions exist. When a developing economy depends on the importation of food because of its stagnant agricultural sector, it must divert its limited foreign exchange towards feeding its population. (Landes, p. 213) As a result, essential investments in infrastructure, social programs and the creation of productive capital are severely restrained. (Crosson, p. XIII) A competent agricultural foundation creates quite another environment. In particular, rural prosperity is generated, and this encourages the emergence of related industries and promotes economic independence. Provided that a comparative advantage in this sector is held, the benefits of rising agricultural production can be significant; however, the achievement of this goal requires heavy investment in infrastructure, technology and capital equipment. Moreover, the significant gap that exists between the time the original investment is made until the intended increase in output occurs has discouraged governments from putting their resources into agriculture. The fact remains, however, that developing countries around the world have too often neglected agriculture. They have prioritized investments in heavy industry and mining, where comparative advantages often do not exist, simply because the promotion of these sectors is traditionally considered a sine qua non of economic advancement and
progress. Until recently, Chile fell into this category of nations.

Since colonial times, the richness of Chilean soil has been well known. Blessed with a gentle climate, abundant Andean waters and exceptional fertility, Chile has enormous agricultural potential. (Rey) Even so, agriculture had been stagnant until the late twentieth century. Pushed by the economic liberalization and the subsequent "miracle" of the 1980s, the agricultural sector grew considerably, notably in the fields of Mediterranean fruit farming and forestry. Today, these activities are among the most dynamic and prosperous of the Chilean economy.

The radical transformation of the agricultural sector and the subsequent production boom are persistently credited to the free-market policies implemented after the coup of 1973. However, this thesis has proved simplistic and fallacious. No doubt the reforms carried out by the "Chicago Boys" deeply changed the agricultural landscape, but recent prosperity has resulted from a complex process that originated even before the landmark Agrarian Reform of the 1960s. (S. Gómez, p. 18) In this article I trace both the local and external changes that brought about today's flourishing agricultural sector. I focus on fruit farming, in which Chile possesses a definite comparative advantage, covering mainly the last three decades of the twentieth century. I also present some historical insights to the more recent events and analyze current problems and their potential implications for the future. As a starting point, I give an overview of the Chilean geography and its determinant natural advantages.

Chile, a Blessing from Nature

Chile extends over 2,500 miles, from North to South along the Pacific, encompassing a wide variety of climatic zones and luxuriant vegetation. This vast diversity enables efficient production of vegetables, cereals and fruit predominantly. Located in the Southern Hemisphere, Chile's yearly seasons are the opposite of those in the upper half of the globe; thus, supplies of fruit enter the northern markets during the winter months, which coincide with the Chilean harvest period. These northern regions absorb well over 65 percent of the fruit traded in the world markets, particularly Canada, the United States, Europe, and Japan. (Gámez, p. 2) With the exception of Asian markets, shorter distances make transportation costs to the main importers significantly lower compared to rival players in the international fruit markets, such as South Africa, Australia, and New Zealand. (Collins and Lear, p. 187) Moreover, Chile's geography allows the timing of harvests to occur sequentially beginning in the northern regions, thus creating a constant supply of produce. A sole harvest period, conversely, requires careful planning to avoid market saturation, and it can force growers to incur supplementary storage costs when world prices are unfavorable. Natural barriers such as the arid deserts in the north, the mighty Andean peaks in the east, and the Pacific Ocean to the west protect plantations from potentially disastrous foreign agricultural pests. Chile's relative isolation has meant that minimal resources have been allocated to the fighting of plagues. An essentially disease-free agricultural environment has contributed to years of sustained growth.

The Central Valley, where fruit production is concentrated, is among the most fertile lands on earth. Rainy winters nourish the Andean snows, and their melting feeds rivers and subterranean streams, bringing abundant water to the valleys during the growing seasons. With summers that are generally dry, growers can "program" their crops with precisely controlled irrigation, which is essential for obtaining high-quality fruit. (Barniol) Fertilizers and pesticides can be diluted and delivered through the irrigation system, thereby reducing overall costs.

The color, flavor and size of the fruit are basic to success in international fruit markets, a world of relentless competition. Nature has endowed Chile with all that she needs for the production of exceptional fruit: the availability and control of water, fertile soil and the right differences in temperatures between night and day. (Barniol) Warm, sunny days accelerate the transformation of starches into sugars, lower nightly temperatures bring increased concen-
tration and flavor to the fruit, and extended day-light during maturation gives the fruit its optimal coloration. (Barniol) Considering Chile's exceptional natural endowments, it is clear that she possesses a comparative advantage in agricultural production.

Land Tenure and the Colonial Legacy

From the early stages of the Spanish conquest of Latin America, land and mineral wealth sustained the first Spanish settlements and motivated further overseas immigration. Although Spain's primary aim in the New World was spreading the Christian faith and saving the souls of infidel Amerindians, in practice the conquistadores were seeking wealth, upward social mobility and distinction. (Skidmore and Smith, p.15) As the immigration from the Iberian Peninsula expanded, a complex structure of land tenure developed to guarantee the rights of a limited, favored group. The encomienda system was the first result of the early settlers' desire to indirectly monopolize the ownership of land.

In theory, the encomiendas represented individual grants given by the Spanish Crown aimed at the mobilization of Amerindian labor. The encomendero had the obligation to instruct the natives in European customs and convert them to Christianity in return for labor services and tribute. While this form of labor grant did not involve rights over any extension of land, quasi-feudal authority was commonly exerted by the patriarchal encomenderos in the territory where the natives resided. (de Janvry, p. 62) The system lead to the ruthless abuse and intense exploitation of the native population. Efforts by the Crown to protect the laborers proved futile, for the encomenderos effectively prevented the implementation of any legislation that could threaten their interests. With time, the system consolidated into a few extensive landholdings, where encomenderos ruled in a totalitarian fashion over multitudes of native laborers. (Collier and Sater, p. 7)

Chile's rural architecture became an integral part of the colonial society. Natives worked the land and paid tribute to the encomendero, either in the form of handmade goods or the excess produce of the land. From an economic standpoint, this structure possessed an inherent problem since all trade and production was strictly controlled by local authorities and the Crown, discouraging the efficient use of the land. Moreover, the Spanish system of commerce discouraged competition by creating monopolies and severely limiting the markets to which Chile had access. (Loverman, p. 74) In fact, all exports had to be diverted towards Lima, the viceregal capital. With modest local markets, high tariffs and costly transportation, the rural economy failed to flourish. In addition, controls aimed at maintaining the prices of basic agricultural products, such as wheat and barley, below market value severely hurt producers and discouraged increases in supply. Smuggling became common throughout Chile, but the volume and perishable nature of agricultural products prevented the sector from greatly benefiting from this profitable practice. Growers found alternatives such as trading in black markets and stockpiling grains waiting for higher official prices. (Loverman, p. 81) During this period, nevertheless, agricultural output more than satisfied local demand, principally centered on the cultivation of wheat, vegetables, barley and apples.

The colonial economic environment failed to provide the preconditions that the agrarian sector needed to grow and progress. Encomenderos had no incentives to intensify their landholding's production, for they already received significant tribute from the natives. Vast portions of their estates stayed uncultivated and the remaining areas produced disappointing yields. In addition, controlling large estates was synonymous with both social and political power, something far more valuable than material wealth in the colonial culture. The strong influence exerted by the encomenderos maintained the existing rural structures uncontested, despite a series of reforming efforts by the Crown. The landed oligarchy constituted the ruling class, possessing strong ties with local authorities and officials as a means of upholding their privileged position. In short, the returns of the landowners were maximized by the simple fact of retaining control over their estates and laborers. In this environment, the costs of overcoming the barriers imposed on trade were difficult to over-
come. Having the proper connections in go-

government and the breaking of the law proved far

greater than any effort to improve rural pro-
duction through efficient agricultural practices.

As the native population fell due to exces-
sive toil, the encomienda system entered a long
decline until it was finally abolished in 1791.
Nevertheless, the rural status quo failed to shift
towards a free labor structure, and the landed
oligarchy survived intact. A moderate growth
in inter-colonial trade, centered around the
Bolivian mines, encouraged agricultural expan-
sion. Moreover, a disastrous earthquake in
Lima in 1687 sent wheat prices soaring (Collier
and Sater, p. 10). Chilean landowners seized
the opportunity and planted new areas. Grains
and, on a smaller scale, dried fruits were sent
abroad. As exports of wheat climbed, land
prices increased as did the necessity for more
hands. With time, the relative scarcity of
Amerindian laborers demanded a new scheme
of labor relations.

Service tenancy or inquilinaje emerged
in response to the need for workers in most
rural areas. Landowners loaned small subsis-
tence plots of land within their estates, known
as haciendas, to tenants who in return provid-
ed both labor services and rental fees. Tenants
planted and harvested the owner’s fields, while
the output from the individual plots fed the ten-
ants and their families. Any surplus coming
from an individual plot could be sold; however,
this excess produce was not significant enough
to allow the economic advancement and sub-
sequent freedom of the tenants. With time, hacendados established greater labor require-
ments on the tenants who had no alternative
but to satisfy them due to the scarcity of land
outside the few large estates, which effectively
monopolized most arable land. (Bauer, p. 15)

The size of the native population recov-
ered with time; nevertheless, its growth did not
create more flexible types of labor relations.
The notion that a larger working force would
make tenants increasingly mobile proved faulty
since they lived in absolute poverty. Higher
rental fees due to the appreciation of the land
cauised many laborers to ask their masters for
deferrals of the debt payments acquired with
their plots. Knowing that the obligations were
impossible to cover, laborers became bonded to

the estates until their repayment of all liabili-
ties. (Burkholder and Johnson, p. 113) In short,
landlords became banks who lent money to
landless peasants, holding them and their daily
work as “collateral” until future repayment.
This practice gave rise to debt-peonage in which
workers were held in debt to halt their mobili-
ty. Perhaps the most serious barrier for agrar-
ian progress was that these liabilities were
hereditary, creating generations of dependent
laborers and preserving the legitimacy of this
system of land tenure. More important still,
neither the growth of local or foreign markets
stimulated the efficient use of the land.

In his work Chile, The Legacy of Hispanic
Capitalism, historian Brian Loverman exposes
the characteristics rooted in Chilean society as
a consequence of the Spanish cultural influence.

With regional variations Hispanic
capitalism shaped Chile into a highly
stratified caste-class society whose
political and economic institutions
survived long after imperial rule...
The concentration of wealth, status,
and real estate in the hands of a priv-
ileged few, denigration of work, and
exploitation of labor were all essential
ingredients in the socio-economic
structure of the colony… (p. 105)
The colonial heritage proved long lasting
by preserving its customs, relations and struc-
tures in the Chilean society well into the twen-
tieth century. In particular, the more conserva-
tive rural sector and its inherently inefficient
architecture remained intact.

Stagnation in the Countryside

From the second half of the eighteenth
century on, the territory that would later
become the Republic of Chile enjoyed relative
autonomy. (Graham, p. 43) Finally, 1817
brought the complete end of the Spanish dom-
nation and a new promising era characterized
by changes in government and economic rela-
tions. In spite of all the reforms enacted in the
newly independent Chile, the rural landscape
remained unchallenged with landowners still
part of the ruling elite.

By this time, there was general agreement
in the ruling circles on the necessity for a rad-
ical change in the agricultural sector, empha-
sizing better yields in grains and fruits and the introduction of alternative crops and their commercialization. Yet most resources were diverted towards the mining sector led by copper, the foundation of the Chilean economy, and nitrates. Meanwhile, landowners started their exodus to the cities, center of the high society, often leaving their properties idle.

The California Gold Rush and later discoveries in Australia provided a strong stimulus to increase production in the middle of the nineteenth century. Starting from 1845 and in only 15 years, agricultural shipments abroad grew by a factor of 10. A further consequence was the birth of the milling industry to satisfy the international demand for flour. (Collier and Sater, p. 80) Later in the century, as the United States began its movement towards mechanization of harvesting, Chile found itself unable to compete in the international grain markets and entered a steep decline as profit margins faded. Instead of following the trend towards modernization, the Chilean landowners continued their reliance on inexpensive, intensive labor and with traditional cultivation practices. (Loverman, p. 150) The abundance of labor made the rationale for investment in mechanization extremely weak.

In the face of expanding international demand, both the government and hacendados promoted the construction of canals and reservoirs to expand the irrigated areas. (Collier and Sater, p. 83) As the wine industry developed and required more grapes, the area devoted to vines multiplied. Further advancements came in the form of more efficient maritime transportation and general infrastructure such as roads and ports. Founded in 1869, the National Agricultural Society or SNA pioneered in research, innovation and improvement of agricultural methods. (Wright, p. 6) The enormous potential of the agricultural sector had been unleashed in response to external shocks; yet all these stimuli fell short of promoting a true land revolution. By the turn of the century, it was estimated that 60 percent of the arable land was contained in only 0.5 percent of all properties, with only a quarter of them cultivated. (Comité Interamericano..., p. 26)

The twentieth century witnessed a new difficulty concerning the precarious agrarian situation. Chile had been self-sufficient in the production of grain, vegetables and fruit for centuries. Yet as a consequence of the under-utilization of land, agricultural production did not suffice to meet local demand. In fact, until 1940 Chile had been a net exporter of agricultural produce; however, by this year population growth outpaced agricultural output for the first time in Chilean history. (Swift, p. 9) This condition in turn created inflationary pressures and balance-of-payments problems. To aggravate the situation, the government imposed official price ceilings for agricultural commodities and discouraged exports after the Depression of 1929 as part of official policies directed at the substitution of imports and controlling the rising cost-of-living index. Centrally planned development, nevertheless, focused mainly on industrialization and mining, relegating direct investment for agrarian improvement to a bottom priority.

Under these circumstances, pressure for radical reforms of the land-tenure structure emerged with significant strength led by both the socialist and communist parties. (Kaufman, The Politics of..., p. 25) As a response, the government formed the Agricultural Colonization Board in 1925. The institution aimed at the improvement of rural working conditions and making the distribution of land and income more equitable. At a time when hacendados dominated politics, the Board's efforts proved unsuccessful due to its inability to expropriate land. Having control over the votes of the tenants residing in their properties, traditional political parties sought to preserve their ties with the landed oligarchy even if these contradicted national interests. This led to such benefits as direct subsidies, special transportation tariffs and harsh labor laws against rural unionization. Even so, governments continued investing in infrastructure and development to a moderate extent through such institutions as the Chilean Development Corporation (CORFO), which in 1922 built the first refrigerated facility designed for the storage of fruit. The improvement and construction of canals, roads, ports and reservoirs, while not substantial, cannot be underestimated, for they formed the physical basis for the agricultural boom of the 1970s and 1980s.
Sergio Gómez, one of the most well-known Chilean agricultural experts, describes in his book *Exportación de Frutas Chilenas* the first efforts to export fresh fruit dating from the 1920s. Produce was transported in vessels and kept on its main decks. As the trip advanced towards the tropics, the fruit was covered with banana shells to avoid spoilage caused by the intense heat. At every port along the journey, the products were sold to local merchants. By the middle of the century, improvements in maritime transportation and the introduction of refrigeration affected the fruit trade positively. Barely a decade after their first entrepreneurial endeavors, fruit producers appeared as the most innovative and dynamic group within the agricultural sector. This emerging group also pioneered in the importation of technology by sending the first delegation to California to study and observe American farming practices. The pinnacle of these efforts was reflected by the implementation of a national plan for the development of fruit-related activities in 1968 consisting of incentives, credit, and efforts to improve existing conditions. During the 1960s, fruit exports grew by nearly 8 percent annually fueled by impressive yields of newly planted areas (Collins and Lear, p. 189). The plan's main objective was the expansion of cultivated land to 280,000 acres by 1980, a goal that was fulfilled by 1976. Considering that a fruit tree becomes productive only 5 years after it is planted, the boom in exports seen during the 1980s owes much of its success to this strategy (Gómez and Echenique, p. 44). Unfortunately, the rigidity of the land market, based on extensive estates monopolized by few owners, put a brake on the potential expansion of fruit farming and also inhibited capital investment (Crosson, p. 34). Even worse, escalating inflation and a large fiscal deficit, which crowded out investment, added to the general economic instability. The wretched state of the economy contributed to the precipitation of events that led to radical changes and brought down one of the most enduring features of the Chilean culture, the patriarchal structures of land tenure.

### The Years of Reform

The election of President Jorge Alessandri in 1958 marked the beginning of official movement towards decisive reform. The close election reflected substantial gains for both communists and socialists in the countryside. Since the introduction of the single ballot in 1957, the landlords' control over the peasants' vote diminished notably. (Stewart-Gambino, p. 110) More significantly still, the peasantry became the new target of political parties for their ample contribution to the total electorate for they could by that time vote independently. Under these circumstances, not addressing the issue of the agrarian reform and the peasants' inhuman living conditions would have meant political suicide. External factors also added pressures for a comprehensive redistribution of land. First, the Cuban Revolution had spread fear of potential radical change to all nations on the continent. In response, the United States pushed for reform through John F. Kennedy's Alliance for Progress, an anti-communist effort. The United Nations and the OAS made public their commitment to the improvement of rural conditions. As a consequence, the first agrarian reform law was enacted by Congress in 1962. (Collier and Sater, p. 281) While it established a foundation for future changes, the document lacked the sufficient expropriation powers necessary to create a major transformation in the land tenure configuration. (Loverman, *Struggle in...*, p. 231) Several loopholes in the law diminished the official ability to redistribute land, providing landowners with an effective shield against the expropriation of their properties.

The shortcomings of Alessandri's policies were immediately seized upon by leftist groups. Marxists increased their presence among the peasantry, who embraced their beliefs enthusiastically, lured by their promise of social redemption. The Catholic Church, its influence among peasants directly threatened, forcefully opposed all leftist doctrines and policies. The inability of the government to stop this leftist trend forced the Church to take a more militant role in the countryside. Social issues such as labor contracts, working conditions, and social injustice were tackled with decisiveness, openly challenging landowners' abuses. A more meaningful measure was the distribution of land belonging to the Chilean diocese to landless peasants, combined with credit and...
technical assistance. Agronomists trained peasants in modern farming techniques, while the Church provided resources for the procurement of machinery, seeds and fertilizers. Although the actual amount of land given was insignificant, the initiative offered a successful model for the government to imitate. (Stewart-Gambino, p. 129)

From an economic standpoint exclusively, agrarian reforms face two conflicting groups: Structuralists and Monetarists. The former argues against large estates and offered justifications for agrarian reform on the grounds of farming efficiency, rural equality, and output capacity. The latter group, on the other hand, advocates that the root cause for the stagnation in the countryside was the failure of government to provide proper infrastructure and to free prices. Both sides engaged in fierce intellectual battles only to see their efforts dwarfed by political and social issues, which finally opened the door for the redistribution of land.

The Structuralist view, held by advocates of the agrarian reform, assumes that high concentration of landownership is inherently inefficient and inhibits the development of a competitive agricultural sector. (Kaufmann, The Chilean..., p. 3) Implicit in this view is a structure existing in Chile prior to the agrarian reform, in which a small elite dominates, physically and politically, virtually all arable land in a quasi-feudal fashion. Privileged with vast wealth and prestige, landlords possess no true incentive to manage their haciendas efficiently or to increase productivity. Moreover, a new class of urban businessmen, mostly beneficiaries of state-run industrialization, acquire land simply to increase their prestige. Combined with the traditional elite, this urban class contributes to further market distortions. In such an environment, only significant increases in prices will stimulate growth in production. (Swift, p. 1) Ironically, with the government committed to price controls, changing land-tenure structures appeared as the only sound alternative.

Monetarists believe that the main obstacle to rural prosperity lies in governmental policies that have relegated agriculture to the bottom priority. Monetarists argue that price controls, insufficient credit, and the lack of public investment in infrastructure and technology prevent the agricultural sector from reaching its full potential. Moreover, with the total redistribution of land as its final aim, agrarian reformers seek to create a large number of small-scale production units. In this environment, it is further maintained that even with proper capital, they will hardly achieve the economies of scale necessary to secure substantial returns. In fact, credit channels are very limited to small landowners, creating an obstacle to acquiring the necessary technology and equipment to increase production (Rey). Underlying this view is the notion that centrally planned economies, in which the state manipulates the market by establishing price controls, fail to adequately allocate resources. (Krugman, p. 2) Moreover, capitalism assumes that individuals will seek to rationally maximize profits; consequently, it is the government's distortion of the markets that has inhibited agricultural progress.

In 1964, elected president Eduardo Frei implemented an energetic plan to accelerate the expropriation of land. His new law established limits to the size of properties to 198 acres of arable area and also allowed the seizure of abandoned and badly managed land. During Frei's 6-year presidential term, the total percentage of land held in properties over 198 acres was reduced from 55 to 5 percent. (Sobhan, p. 50) By the end of his regime in 1970, nearly 8.7 million acres had passed to new hands.

Frei's reform program established cooperative farms called asentamientos where the new owners received training in efficient farming techniques and management. Concurrently, financial and technical assistance was to be provided by CORA, the Agrarian Reform Corporation. After three years, the individual members of each asentamiento had the choice to remain together or split into independent properties. Perhaps the most significant advancement for the fruit-farming sector was a new joint program of technical cooperation between the University of California at Davis (UC Davis) and the University of Chile. Financed largely by the U.S. government, scholarships were awarded to Chilean students who continued their graduate careers at UC Davis. As part of the exchange, UC faculty spent their sabbatical years in Chile teaching and conducting
research. Two essential factors contributed to
the success of the program. Similarities in land
and climate between Chile and California made
the importation of technology possible without
major difficulties. Furthermore, the U.S. gov-
ernment never considered the development of
the Chilean fruit sector as a threat to its eco-
nomic interests. (Echenique, p. 22)

Marxist Salvador Allende, elected in 1970,
continued and escalated the process of land
redistribution. Yet the chaotic economic situa-
tion of Chile and widespread rural unrest ren-
dered uncontrollable all reform efforts for a
managed redistribution of land. The peasantry,
encouraged by years of Marxist influence in the
countryside, unlawfully invaded numerous
estates which were traditional symbols of cap-
itlism (Dorner, p. 38). Moreover, the lack of
security for private property, caused by the fear
of further expropriations by the leftist regime,
paralyzed land investment. With the economy
in crisis and fiscal coffers empty, the govern-
ment was unable to provide assistance to new
farmers. In summary, the agricultural sector
and the entire nation entered one of their dark-
est economic periods.

Almost 50 percent of the total arable land
had been redistributed by the eve of the military
coup of 1973. Starting with Alessandri in 1958,
what had been envisioned as a promising effort
to improve agricultural output and provide social
justice in rural areas had nevertheless missed its
primary aims. Even so, the Agrarian Reform
cause the balance of power to shift permanent-
ly away from the landed oligarchy’s interests,
ending its obstruction to rural progress.

The Agricultural Boom

The year 1973 stands as the beginning of
a new era of prosperity and success for Chilean
agriculture. The general restructuring of the
business sector by the military junta and their free-
market policies affected positively all areas of
the economy and especially those involved in
international commerce, among them the agri-
cultural sector. With the power of the landed
oligarchy and other political elites severely crip-
pled, the military possessed the autonomy to
enact sweeping changes.

Shortly after taking power, the military
government reversed agrarian reform. Thirty
percent of the land expropriated was returned
to previous owners, and 15 percent passed to
public hands or was auctioned. The remainder,
around 55 percent of the total, was preserved
under the system of the asentamiento. (Thiesenhusen, p. 245) Yet this group of bene-
ficiaries of agrarian reform, who until recently
had been landless peasants, were forced to sell
their farms due to the lack of resources provid-
ed by official agencies. The immediate conse-
quence was the creation, for the first time in
Chilean history, of a truly deregulated market
for the land, breaking century-old barriers to
the advancement of capitalism. (Hojman, p. 35)
A new class of entrepreneurs and businessmen,
both Chilean and foreign, was introduced into
the agricultural sector. Unlike previous
landowners, they emphasized the potential for
profits rather than the prestige of landowner-
ship. Meanwhile, a dynamic financial sector
provided the necessary credit that enabled the
modernization of farming through the pur-
chase of modern equipment, pesticides and fer-
tilizers, seeds, and other indispensable inputs.
Moreover, by this time the military government
guaranteed private property, effectively ending
the threat of expropriation, making the owner-
ship of land a secure investment. It is impor-
tant to mention that the vast investments in
infrastructure made in previous decades pro-
vided extensive irrigation networks along with
refrigeration facilities and efficient plants for
packing and processing of produce.

The commitment to the neo-liberal poli-
cies designed by the “Chicago Boys” played a
key role in the agrarian sector. The liberaliza-
tion of international trade and the end of price
controls and subsidies made the export of fruit
more and more attractive. The opposite effect
was felt by growers of traditional crops, which
proved unable to compete against cheaper
imports prompted by lower tariffs. Instead of
hurting the agricultural sector, this decrease in
competitiveness encouraged the specialization
in fruit farming which appeared as the most
profitable activity within the agricultural sec-
tor. (S. Gómez, p. 24) In fact, the high returns
that fruit growers enjoyed prompted the inflow
of abundant capital, at moderate interest rates,
fueling continuous growth and prosperity.
Economic liberalism meant that Chile would now form part of the global economy. To increase competitiveness, paternalistic, protective labor laws were abolished immediately. The end of minimum wages and rural unionization provided the flexibility growers needed to obtain higher returns for their investments. A substantial increase in temporary, seasonal jobs which implicitly brought lower wages and no social benefits made rural labor very inexpensive. (Jarvis, p. 3) Poverty continued to be an integral part of the life of the rural laborer, who saw his already low income decrease in real terms. In short, the economy was liberalized to an extent never seen before in Chile.

The results of the joint program with the University of California began to emerge rapidly. An entire generation of professional agronomists and engineers provided the knowledge necessary for the efficient management of farms. Exceptional yields on crops and the introduction of new varieties of plants and trees allowed the sector to grow at rates unprecedented in Chilean history. Overall, fruit production was diversified significantly. Table grapes and apples still dominated the market, accounting respectively for 36 and 29 percent of total fruit exports in 1997. Kiwis, pears, nectarines and prunes made up the major portion of the remaining market. Investment in technology and joint ventures with public institutions were dramatically reduced to cut the alarming fiscal deficit and to reduce the governmental role in the economy. Eventually, the producers would have to seek alternatives to state-supported research like universities and privately founded institutes.

Rampant inflation had been one of the legacies of the Allende regime, and it presented a challenge for the policymakers after the coup of 1973. A severe contraction in the money supply reduced investment by moving market interest rates to punitive levels. Moreover, official manipulation of the exchange rate overvalued the currency, making exports less attractive (Larrazán). In fact, the peso was pegged to the dollar from 1979 until the economic crash of 1982. This year witnessed a GDP drop of over 10 percent with widespread bankruptcies and rising unemployment. The end of low-cost finance, an integral part of the agricultural boom, created a short, moderate recession. The recovery after 1984 saw the fruit exporting sector as one of the least affected of the nation. In that same year, the currency was devalued, favoring exports. Equally important were the modest import tariffs and price bands established to protect traditional crops. (Parías and Vicuña, p. 3) With these reforms in place, vigorous double-figure growth spread throughout the agricultural sector, growth that would not diminish until the 1990s. This impressive expansion was complemented by the development of related industries such as packing and processing, exporting, and transportation, among others. Statistics show that while fresh fruit exports grew five-fold between 1980 and 1997, the size of the fruit-related industry increased twelve-fold. (“Evolución Reciente...,” p. 4)

World markets were also favorable in the 1970s and 1980s. International demand for fruit increased as more people moved towards healthier nutrition, especially in Europe and the United States, where people enjoyed year-round supplies from nations in the southern half of the world. (Collins and Lear, p. 186) Anti-apartheid boycotts forced South Africa, a major competitor, out of the world markets during this period. (Collins and Lear, p. 186) More recently, East Asia has emerged as an important fruit importer, absorbing roughly 10 percent of the total share of Chilean shipments. Optimistic projections about further growth in exports to East Asia proved wrong, however, with the emergence of the Asian financial crisis in 1997. Indonesia, Malaysia, Singapore and South Korea, the most severely affected nations, have virtually stopped all fruit purchases. (“La Crisis Asiática...,” p. 4) Surprisingly, in spite of the decline of Asian demand, and the effects of El Niño, exports of fruits still grew by 3 percent in 1998. (“Exportaciones Frutícolas..., p. 1)

It can be concluded with confidence that the success of the neo-liberal policies implemented in the two decades that followed the coup of 1973 was made possible by the reforms preceding them. (Díaz and Martínez, p. 134) The agrarian reform and subsequent dismemberment of the landed oligarchy, investments in infrastructure, the technological exchange with California, and favorable international markets were all part of a series of events on
which the agricultural success of the 1970s and 1980s was based.

**Future Perspectives**

The last quarter of the twentieth century witnessed the complete transformation of the Chilean agricultural sector. It stands now as proof of the potential and wealth of Chile's natural resources. Recent performance appears to indicate, however, that the growth the sector is accustomed to cannot be sustained unless substantial improvements are made.

For example, agricultural activities depend largely on the presence of proper infrastructure such as ports, roads, canals, reservoirs, and even airports for shipments of specific varieties of fresh fruit, such as berries. According to studies conducted by the SNA, substantial losses of export-quality fruit occur due to the state of secondary roads in rural areas. For one thing, trucks are quickly ruined and transportation becomes difficult because vast areas cannot be readily accessed. Furthermore, the condition of the fruit is adversely affected by the dust coming from non-paved roads. (World Bank, p. G11) There are high expectations, both in terms of efficiency and costs of services, arising from recent developments in the privatization of ports, one area still managed by the state. A severe drought in 1998, blamed mainly on "La Niña," revealed the need for the construction of wells and canals, and improvement of irrigation techniques. ("Agricultura Podría...") A far more significant issue has been the recent conflict between farmers and hydroelectric plants for the rights over reservoir waters, which has led to both crop losses and blackouts. (P. Gómez, p. 1) Water has been scarce and measures have to be taken to ensure production without an over-dependence on the benevolence of nature. While fruit production has continued to grow even under unfavorable climatic conditions, forecasts estimate that the output of traditional crops such as grains and potatoes, the hardest hit within the agricultural sector, will decrease by 25 percent in 1999. The World Bank sees private involvement in the development of infrastructure as the only viable alternative for improvement. Naturally, the central government will continue contributing with incentives, but it will not take a leading role due primarily to its commitment to free-market policies.

The Chilean economy has benefited from the stability that a strong currency and low inflation bring. In particular, Chile adopted a policy of maintaining a managed exchange rate under which the currency is allowed to float between bands controlled by the Central Bank. With its sight set on maintaining low inflation, the Central Bank seems unlikely to let the currency decline in value, an action that would favor exporters significantly. In recent years, the adverse stimulus to exports that a strong currency provides resulted in a deterioration of Chile's agricultural competitiveness in international markets, as its products have become relatively expensive to those who import Chilean goods. Severe regulation of capital flows and of the banking system have made borrowing expensive, preventing further modernization of cultivation. (Bachelet, p. 44) International figures show a drop in Chile's competitiveness ranking from 13th to 22nd between the years 1995 and 1996, blamed mostly on the overvalued currency and rising costs of production. ("Evolución Reciente...," p. 5) Coping with higher costs of inputs requires more efficient use of resources. Pressures for overall increases in wages in agricultural activities, which still remain very low, and modest increases in the costs of packing and commissions to intermediaries have reduced profit margins considerably. Fluctuating world prices have added further uncertainty to the production of some varieties of fruit. International fruit markets, depending on the region, impose specific requirements for exporters, among them minimum size and weight of the fruit, circumference, color and overall appearance. When some East Asian markets closed their doors to Chilean fruit, some shipments were reassigned to other areas with demand for fruit of similar characteristics. Nevertheless, the product formerly supplied to Asia may not meet other regions' standards, forcing producers to sell export-quality fruit locally at lower prices. Considering that fruit trees take approximately five years to reach maturity, better forecasting and production planning play a vital role in the success of the business.
Some favorable natural factors that once enabled agricultural enterprises to excel have eroded due to technological advances. Hydrocooling is a modern technique by which fruit and vegetables can be frozen for up to a year without altering their composition. Once prices are favorable or demand increases, the product can be defrosted and sold as fresh. (Mohring) Consequently, Chile will be eventually deprived of the advantage provided by its seasons compared to countries in the Northern Hemisphere. Cheaper shipment costs have also made Chile's proximity to important markets, such as Europe and the United States, less relevant. In this new environment, cutting costs and intensification of production become ever more important.

Environmental issues, something that economic indicators do not show, may be the most alarming concern today. The use of prohibited pesticides and the pollution of watercourses are common agricultural practices. The mining industry, the backbone of the Chilean economy, dumps metalloids and other toxic waste that in the long run will affect arable lands. Recent attempts by Chile to join NAFTA will certainly affect these issues, since NAFTA contains specific provisions regarding environmental matters. (Villarino, p. 7) The significant presence of multinational companies, mainly European and American, has had a positive impact on environmental issues. Even in their foreign subsidiaries, multinationals maintain the standards of their country of origin; thus, they have strongly pressured Chilean producers to adopt environmental-friendly practices. (World Bank, p. 183) Moreover, the growing "organic" market, from which Chile has failed to profit, should encourage producers to diminish the use of pesticides. As the world moves towards the integration of markets, Chilean exporters cannot turn their backs on environmental regulations, which need to be addressed immediately. Existing laws protecting the environment and controlling the use of certain pesticides have so far not delivered positive results, due mainly to the ineptitude of officials that should enforce them. For all its shortcomings, an institutional framework exists, and it is in the producers' best interests to follow all regulations to avoid potential trade sanctions in the future. As of now, however, the required drastic changes seem very unlikely to take effect.

Together with the mistreatment of the environment go the inadequate practices that have caused the exhaustion of the soil. The abuse of pesticides causes them to accumulate in the soil, rendering it unproductive. Also critical is the quality of the water used for irrigation. With only weak controls available, unsuitable water with high degrees of contaminants and salt has led to the erosion of vast areas of arable land. These waters come from rivers running through industrial areas and cities, where waste is discharged into the streams. In 1994, a series of long-term strategies for recovering degraded surfaces was officially established, but the results are yet to be seen. (Munoz and Villarino, p. 7) The need for education and training in the rotation of crops is vital. A more drastic alternative is the transformation of agricultural land, after a certain time, into pasture for cattle. Since fruit farming is the most profitable activity, however, these practices have been discouraged. Thus we observe erosion and decertification of vast areas.

Closely related to the sustainable use of natural resources is innovation in research and technology. In the current circumstances, increases in productivity can come only from technical advances. Intensification in the use of land cannot be replaced by extensive use of it. The technical exchange with California was essential for the development of Chilean agriculture. The adaptation of imported technologies to local conditions is a lengthy process, and the results are very often below expectations. In today's world of extreme competitiveness, these issues constitute a severe disadvantage. Consequently, Chile has to devote more resources to research and development of superior, more productive plant species, farming techniques, and practices that fit Chile's unique landscape. The military government, as part of its policy of reducing state intervention in the economy, has practically eliminated most publicly funded research. The task has been taken up by the private sector and universities but with mixed results. For one thing, they lack the resources to conduct large-scale projects. For another, private interests have often led to the duplication of research because of the individ-
ualist orientation characteristic of capitalist systems. One possible solution lies in the improvement of the existing communications among universities, public agencies and private research centers to create a true scientific community where all resources are pooled to achieve the common goal of technological advancement. (World Bank, p. 153)

Chilean agriculture today can best be described as a bipolar sector. On the one hand, fruit producers have enjoyed years of prosperity based on the export of their output. Along with them large growers of traditional crops, such as wheat and potatoes, dominate local markets and, with highly capitalized production, they have been able to compete with cheap imports. At the other extreme are small traditional farmers. With no access to the economies of scale that the first group enjoys, they have seen their profits plummet for years. Limited by the lack of credit, modern technology, decreasing subsidies and inadequate farming know-how, their prospects seem dim. (“Chile: New Farms...,” p. 30) Experts predict that as the tariffs within MERCOSUR (the free-trade agreement between Brazil, Argentina, Uruguay and Paraguay, in which Chile is also a member) are cut and world trade moves towards greater openness, small farmers will be absorbed by highly capitalized producers. In theory, specialization favors countries that focus their resources in areas where comparative advantages exist. But in the case of Chile, a move towards specialization in agriculture could have unimaginable social consequences. Small farmers, already living in extreme poverty, may find themselves unemployed and without any governmental protection. Given this scenario, a sound alternative may be moving towards the practice of adding value to agricultural exports. Expanding related industries that add value to agricultural products such as canning, juice and jam making could cause some of the potentially idle workforce to be absorbed. A significant drawback to this proposal is the fact that developed countries still impose high tariffs for such products and other fruit derivatives to protect their own industries. A different approach may be for the government to embark upon efforts to educate the peasantry and invest in modernizing their agricultural practices. There exists no clear answer to the social question, but only the hope that solutions will eventually be found.

Extreme poverty, misery and inhumane living conditions have been characteristic of rural workers even before the birth of Chile as an independent nation. Landowners today cannot continue creating wealth while maintaining their reliance on inexpensive labor. (Fairbanks) Chile possesses one of the most inequitable income distributions on the entire continent. Rural workers have collected only the crumbs of the substantial pie created by the recent agricultural boom. The need for better education and training programs in agricultural techniques and practices is urgent, along with improved working conditions and secure contracts and social services. Such changes will pave the way to a more just and equitable society. Benefits from the investment in human capital will certainly outweigh the related costs, considering the consequences of rural poverty like immigration to urban centers, crime and social unrest.

By definition, agriculture involves the manipulation and utilization of nature to produce crops. Yet this simple definition appears to be narrow-minded today when the ecological dangers caused by abusing natural resources jeopardize our own survival. Agriculture can no longer rely on the indiscriminate exploitation of the soil, a renewable resource only if properly used. Expansion and growth have to come from the responsible use of natural resources and technological advances. Needless to say, all empires contain the seeds of their own destruction.

Global integration combined with fierce international competitiveness pose Chilean agriculturists with new obstacles and requirements, especially environmental concerns. For over 75 years, fruit growers have shown their skills and resilience when facing unfavorable local and external conditions. New, more intense barriers will arise on the horizon that will put producers to the test. The longed-for dream of sustainable growth for the agricultural sector has still not materialized. During periods of prosperity it is simple to appear competent; the real challenge is whether or not producers and exporters will be able to deal with adversity.
REFERENCES


