

## CHILE'S AGRICULTURAL ADVISORY SERVICE FOR SMALL FARMERS: 1978 - 2000

Julio A. Berdegúe  
RIMISP<sup>1</sup>, Casilla 228-22, Santiago, Chile  
jberdegue@rimisp.cl

Cristian Marchant  
INDAP<sup>2</sup>, Santiago, Chile  
cmarchan@indap.cl

### INTRODUCTION

Since 1978 Chile has experimented different arrangements of its extension system for small farmers, all of which share the characteristic of private delivery and public funding of the services. No other developing country – and few developed countries – can show this continuous track record of more than two decades of contracting extension services with private sector organizations.

At the same time, several of the characteristics of the extension services have been evolving over time, to adjust to the prevailing economic, institutional and political conditions in the country.

This paper will describe and analyze the evolution of Chile's agricultural advisory services for small farmers (AAS)<sup>3</sup>. First, we briefly characterize the major periods of this evolution and discuss a number of the attributes of the AAS in each period. We will then present the evidence available to characterize the impact of the system. In the last section, we will discuss the major lessons learned.

### THE EVOLUTION OF THE AGRICULTURAL ADVISORY SERVICES

Until the mid 1970's, Chile's extension service resembled the predominant model established in the 1950's and 60's in most Latin American countries under the influence of USA advisors. However, in 1978 the delivery of the extension services for small farmers was privatized overnight, as part of an overall neoliberal policy which aimed at drastically limiting the participation of the government in any activity that could be conducted by the private sector. Since then, and in particular since the 1990's, many other Latin American countries have designed extension services under the influence of the so-called "Chilean model".

At least four stages can be recognized in the evolution of the AAS from 1978 until 2000 (table 1):

**1978 – 1983. Period of maximum liberalization.** The Ministry of Agriculture, through one of its agencies, implemented the Entrepreneur Technical Assistance Program (ATE). In this program, individual small and medium farmers could obtain fully subsidized, government-issued vouchers with which they could pay for the technical assistance provided by an independent agronomist or veterinary doctor. The individual farmer was responsible for selecting the professional that would provide the services. The farmer could terminate the contract at any time.

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<sup>1</sup> International Farming Systems Research Network

<sup>2</sup> Agricultural Development Institute

<sup>3</sup> We use the current name of Agricultural Advisory Services (AAS) to describe the Chilean system. However, between 1978 and 1983, the system was known as Entrepreneur Technical Assistance Program (ATE); between 1983 and 1997, the official name was Technology Transfer Program (PTT), which described the overall program which had several "modalities", each of them with a specific name such as Integral PTT, or PTT Stage I, etc. The current name of Agricultural Advisory Services was adopted in 1997.

The objectives of ATE were very traditional: to increase yields of basic commodities. Contractors were individual professionals with university degrees in Agronomy and, to some extent, in Veterinary Medicine. About 13,800 small farms (out of a total of about 240,000 small farms in the country) participated in the program. The methodology was limited to individual farm visits, at times and frequencies determined by the advisor and the farmer. The average subsidy per household was of about US\$ 520 in dollars of January 2000.

Government intervention was minimal. The system was based on the premise that bureaucratic interference would lead to inefficiency and, it rested on the principle that free market processes would eventually lead to an equilibrium in which the good extensionists would hold the largest number of individual contracts, and where the farmer would be the supervisor and evaluator and would act by renewing or terminating the contract of the extensionist, depending on the results of his/her work.

This system failed completely and was totally discarded, despite the fact that it fully responded to the general principles being implemented by the military government in all spheres of public life. The main reason for the failure of ATE was the false assumption that there was a market for technical assistance services in the rural areas of Chile.

In real life, the farmer really was not free to choose between two or more professionals, since in most rural areas even the presence of one qualified agronomist was a rare event. Thus, the farmer ended hiring the one person who visited his/her farm, and this contract was established on the basis of the information that the provider of the service (the extensionist) wanted to transmit to the farmer. If the results were not those that the farmer expected, normally nothing happened, since the cost of the service was fully subsidized and in most cases there were no other competing professionals in the area. As Gómez (1991) concludes, the lack of government supervision "led to all types of irregularities and most of the times it was the peasant who was most affected . . . "

**1983 – 1990. The period of maximum uniformity.** Partially as a response to the distortions that resulted from a system with minimum government intervention, in 1983 the system was replaced by a strictly-regulated Integral Technology Transfer Program ( PTTI ). This program was supported by a World Bank loan, and its design was based on the Training and Visit approach.

The objective of the PTT was to increase yields and production levels of the basic agricultural commodities. In fact, the PTT was a component of an overall economic program designed to stimulate the performance of "traditional agriculture" (i.e., those sectors destined for the internal market, as opposed to for export fruit and vegetable production). Aside from providing technological support services for small farmers, this new economic program also considered measures aimed at improving prices and marketing. Hence, the PTT existed in an economic environment which was very conducive to the intensification of agriculture by means of the use of improved seeds, fertilizers, herbicides and pesticides.

The 13,700 farmers serviced by the PTTI (9% of small scale agricultural producers) were almost all of the *Parcelero* type, that is, the stratum that originated in the Agrarian Reform of 1964-73, with landholdings of a maximum of 15 equivalent irrigated hectares, located in valleys which are characterized by relatively good soils and favorable climate. The system was the same for the whole country and for all agricultural regions, although in 1987, an equivalent program (the Basic Technology Transfer Program, or PTTB) was introduced with about 13,000 *Minifundistas* (very small scale farmers, usually practicing subsistence agriculture in poor areas of the countryside).

In the PTTI, and later also in the PTTB, it was the government that determined which private Technology Transfer Consultant firm (CTT) would provide the service in a given area, using a system of public bidding. The majority (92%) of the contracts were held by small for-profit consultant firms, constituted by one or two university level professionals who were the owners of the firm and also acted as field-level advisors to farmers.

Contracts would be awarded by the government agency that administered the program (INDAP – Agricultural Development Institute) on the basis of "Modulos", that is, groups of small farmers, that would be subdivided into "Submodulos". Each "Modulo" was supervised by an agronomist or veterinarian, and each "Submodulo" was serviced by an Agricultural Technician. All aspects of the service were regulated in great detail, including the farmer/extensionist ratio (48/1 at the beginning, which later evolved to 66-72/1) and the types, number and frequency of the activities.

The extension method was based on an intensive program of individual farm visits (15-20/farmer-year). The extensionist needed to file at the start of the year a very detailed work plan, that was checked against frequent completion reports. The progress of the annual work plans was controlled for 100% of the participating farmers.

Due to strictly political reasons, many qualified private organizations (such as NGO and Small Farmers' Organizations) were in effect barred from participating in the program; thus, quality was not the overriding variable that decided the results of the public bidding system. By 1989, only three consultant firms, closely linked to the government, held 39,8% of all the contracts (Gómez, 1991).

The average annual subsidy per household was of about US\$ 467. This amount was paid directly by INDAP to the consultant firm, thanks to a mandatory contract signed by the farmer as legal recipient of the government subsidy, that “delegated” in INDAP the tasks of directing, monitoring and controlling the service provided by the consultant and of paying accordingly. The extensionist got paid depending on the number of activities that were done within the established dates and meeting certain basic standards (e.g., the number of participants in a field day had to be above a minimum for the activity to be counted as valid).

The program reached a point in which it was highly concentrated due to political exclusion and very rigid. The elements of control aimed at supervising the timely completion of the annual work plans of the extensionists and other such formal requirements, with very little attention being paid to more substantial issues such as quality control or the effects of the technical assistance on production, productivity and income.

But the PTTI worked, in the sense that reasonable and timely services were received by about 25,000 small farmer households. There is little doubt that the PTTI between 1983 and 1990 had a significant impact in terms of the productivity objectives that it defined for itself. Namdar-Irani and Quezada (1995) have shown that in 1991, yields of participating households were 25% greater than the national average in wheat; 31% in corn; and 14% in field beans. In all cases, yields of the participating farmers were below the national average at the start of the period analyzed in this study.

Despite its rigidity, its “top-down” approach, and its lack of methodological concern with the issue of impact, the PTTI worked because its design, objectives, and target populations were all very coherent with the objectives of agricultural and economic policies. Small farmers had clear and strong incentives to intensify production and raise yields, and the PTT provided the information that allowed them to respond accordingly.

**1990 – 1996. The “Improvement Plan”.** In 1989, Chile elected its first democratic government after 17 years of military rule. As part of the overall effort to consolidate democracy, all branches of government had to give priority treatment to the poorest sectors of the population. This meant that the PTT was expected to play an important “social” role. In less than two years, coverage was doubled to a total of about 47,000 households (eventually it stabilized at about 50,000 households), and almost all of the new participants came from poor regions of the country, with limited potential for economically competitive agricultural production. It was expected that the PTT extend its “productivist” objectives to these new clients or beneficiaries, and the obvious discrepancy between objectives and potential soon began to have an effect on the system as a whole.

At the same time and for reasons that would be long to explain and that lie outside the field of interest of this paper, the agricultural and economic policies introduced in 1983 were having very limited effects in 1990. The incentives for small farmers to intensify “traditional agriculture” and increase yields and production, were rapidly becoming non-existent. This introduced an additional discrepancy, between the declared objectives of the PTT and the incentives created by the overall economic environment.

To respond to these challenges, an “Improvement Plan” was designed in 1993-94. The objective of the PTT was changed from “increase yields” to “diversify and increase yields”. In 1994, 468 local groups (out of a total of 1109) defined that their main objective was the introduction of new production alternatives, and almost 450 groups redirected their work to emphasize solving marketing problems (table 2). Thus began in 1993-94 a transition from an extension system guided by the traditional role of increasing yields and production, to one that would increasingly seek the competitive integration of small scale agriculture in an open market economy (meaning that the production objectives would need to be complemented by work on issues of post harvest, value adding, marketing, access to financial services, farm management, business planning and farmers’ economic organizations).

Field-level methodologies were changed to emphasize group activities as opposed to individual farm visits, in part because the PTT now wanted to promote the emergence of farmers’ grassroots organizations, and also because it was indispensable to reduce the per capita cost of the system in order to be able to finance the large expansion in the number of participating households. As compared with the 1978-83 period, the average subsidy per household was reduced by 29% in real terms, to about US\$ 370 in 1996.

Increased operational flexibility was introduced to the PTT by means of two complementary measures. First, a number of operational “modalities” were introduced, each of them specifically designed to fit the needs of particular regions of the country and beneficiaries (e.g., mountain agriculture, subsistence agriculture practiced by households living in extreme poverty, small farmers involved in intensive for export agriculture, etc.). By 1995, there were 16 of these “modalities” under the general umbrella of the PTT. In the second place, the annual work plans of the individual extensionists, which until then were the main planning instruments, were replaced in that role by the “Medium Term Programs” (3-5 years), designed in a more participatory manner and at the level of groups of farmers (defined as neighbors in “local groups” and/or as farmers sharing a common objective in an “interest group”).

Finally, the political constraints that had prevented the participation of many qualified private sector organizations, were removed in 1990. As can be seen in table 3, the system became much more diversified in terms of the types of service providers; it can be seen that once the system was freed of political constraints, NGOs and farmers’ organizations became important providers of technical assistance services under contract with the government.

**1997 – 2000. The Agricultural Advisory Service.** Starting in 1997, INDAP implemented a new set of reforms, that included changing the name of the program from Technology Transfer Program to Agricultural Advisory Service (AAS). The main changes included: (a) a much role of farmers’ groups and organizations in choosing, contracting, evaluating and, if necessary, removing the service provider; (b) a clear differentiation of the specific types of services and objectives to be achieved, according to the degree to which the local farmers’ groups had consolidated and become capable of formulating and implementing a concrete medium-term development project or a business plan in the case of legally constituted farmers’ economic organizations; (c) greater responsibility of farmers in co-financing the service; (d) a consolidation of the idea that the objective of the AAS was not to simply increase production, but to promote the viable and competitive participation of small farmers in an open market economy, and that the system should support both “hard” and “soft” (i.e., management) technologies and innovations.

AAS actually is a cluster of four different types of services. The Local Advisory Service (LAS) are provided to loosely organized local groups of farmers, who actively express their interest in receiving this service. LAS lasts for 2 years, period in which the local group must evolve into a more formal and structured organization, capable of formulating a much more concrete project in terms of the development of local agriculture linked to a viable market. The annual subsidy per farmer involved in LAS is of US\$ 330, and each farmer must contribute an additional US\$ 25 to US\$ 30<sup>1</sup>

In a group reaches the two main objectives of LAS, it can apply to the next stage, the Project Advisory Service (PAS). In PAS, the purpose of the system is to provide all forms of technical support required to implement the development project designed during the LAS phase. Such support always includes agricultural advise and information, but also legal advise, accounting services, technical support so that the organization can obtain the required loans and subsidies to finance their project, management advise, etc. An organization can remain in PAS for up to five years, after which is it supposed to have been successful in having consolidated their project, which would have turned into a viable business enterprise, implemented by a legally constituted farmers’ economic organization (such as a Cooperative, a Limited Liability Corporation, or a Corporation). The average annual subsidy per farmer in PAS is of about US\$ 500, and the farmers must pay an increasing share, starting with around US\$ 50 in year 1 and ending in about US\$ 150 in year 5<sup>1</sup>.

After PAS a farmers’ economic organization can then apply to the Specialized Advisory Service (SAS). In SAS, the organization receives subsidies to pay for short term, highly specialized consultant services to address very specific technical, legal, management, or any other type of problem it may be facing and that can be solved with the support of an external consultant. An organization can have access to this subsidy for a maximum of three years. The maximum subsidy that an organization can receive under SAS is of US\$ 384 per member per year, and it is expected that the organization co-finance 25% to 35% of the actual cost of the consultancy services.

When organizing the transition from PTT to AAS, INDAP recognized that many very small and poor farmers, practicing subsistence agriculture, would have great difficulties in participating in the market-oriented arrangement described above. Hence, the PRODESAL modality was also put in place, to attend this segment of the INDAP clients.

PRODESAL is implemented through a contract between INDAP and the municipal governments, since these are the institutions that can complement agricultural services with improved access to social services of great importance to those

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<sup>1</sup> An educated guess is that, in practice, actual co-payments range between 30% to 60% of the required amount, depending on the regions and the profitability of the farming systems involved.

living in conditions of poverty. By means of these contracts, INDAP transfers to the municipal government about US\$ 240 per farmer, and the municipal government uses these resources either to provide the service directly or to subcontract private consultant firms or NGOs that will take care of doing the field work. About 20,000 of the 52,000 farmers participating in AAS, are in the PRODESAL modality.

Under this new arrangement, there is no predefined field work methodology. The local groups and their advisors are fully free to define their specific goals and how they plan to meet them. The field level monitoring system of INDAP focuses on the results that are actually achieved.

Under the new arrangement in which farmers' organizations had a much greater say in deciding which firm should be contracted to provide the advisory services, NGOs suffered a very large reduction in their share of contracts (table 3). Private for-profit consultant firms and farmers' organizations retained their share, while municipal governments became a very important actor in the system.

## **IMPACT**

In 1997 a major external impact evaluation was contracted by the Ministry of Economic Affairs jointly with the Ministry of Agriculture (Comisión Interministerial de Fomento Productivo, 1998). As part of the impact assessment, 3000 households were surveyed (with and without participation in the program), six in-depth regional case studies were conducted, and over 300 persons were interviewed from agribusinesses, universities, governments, NGOs, and farmers' organizations. It was found that, on average, farmers remained in the system for 5.85 years, with an average total net present cost per farmer (subsidies plus direct and indirect cost of administration of the program, at a discount rate of 12%) of approximately US\$ 4,094.

Depending on the indicator of benefits (net profit of the agricultural activities of the participating households, net annual household income, or annual value added by the program), and on the assumptions about the continuity of effects and benefits if the program was terminated, total net present benefits to farmers were estimated to be between 0.86 and 2.14 times the net present cost of the program. The lowest estimate was obtained under the assumption that the effects of the program ended immediately when the program was terminated, and the highest estimate represented a situation in which the stream of private benefits remained unchanged for six years. The study also found that there was no or very little impact in the case of those households for which on farm income represented less than 50% of the total household income, a condition which was associated with very small landholdings in regions with low agricultural potential.

Edmonds (1998) did a panel study of 250 households of Ñuble province, that were surveyed in 1987 and again in 1995. His data allowed him to do a comparison over time and with/without participation in the project. Edmonds concluded that PTT participation had a positive and significant effect on farm revenues and total family income. The program prompted farmers to adopt nitrogen fixing bean crops, but did not have significant effects on crop yields or the likelihood a farm planted certified seeds or applied fertilizer. The primary mechanism through which the program increased farm income was by increasing the intensive scale of farming pursued by participants.

A study by López (1996), based on a survey of almost 1000 households, concluded that the PTT had a statistically significant impact on productivity per unit of land, physical total output, proportion of total household income derived from on-farm activities, and proportion of the total labor of the head of the household allocated to on-farm activities. However, this study also concluded that, in 1994, the total net per capita income was not significantly improved by participation in the Program. The author suggests that the improved productivity is offset by the reduced income from off-farm sources, and by the fact that the production increases are in the direction of crops that are less profitable.

Another partial study, conducted by the World Bank (1994) as part of a strategic review of Chile's rural and agricultural sectors, concluded that the annual family income of those who participated in INDAP's program in a low-productivity region characterized by a high incidence of rural poverty, was US\$ 1200 greater than that of non-participating households.

## **CONCLUSIONS**

Chile's agricultural advisory service for small farmers has evolved over two decades in a process that has combined elements of gradual change, while keeping in place the key feature of private delivery and public funding of the services provided to farmers. Together with the changes in the economic, political and institutional context of Chile, the system has been able to evolve from one whose main purpose was promoting increase yields of basic commodities, to one which is now focused on the competitive participation of small farmers' economic organizations in an open market economy.

All impact studies agree that the system has had a positive impact on key indicators of agricultural and technological performance. All but one of the available impact studies, agree that it has also had a positive and significant impact on the net income of the participating farmers. Our opinion is that the system has played a very positive role in supporting the development of a more competitive, diversified and productive small scale agriculture in Chile, and a more modest, but also positive role in the alleviation of rural poverty.

There is no doubt that this system based on the combination of private delivery and public financing of agricultural advisory services, has in fact solved many of the operational problems that for decades have plagued more traditional designs of extension systems, such as excessive bureaucratization and polititization, inefficiency of operations at the field level, lack of operational budget, etc. At least on this level, the system works well and with reasonable efficiency.

The average costs per farmer to the government have steadily decreased over time, this being an element that has allowed room for a very significant expansion of the number of households served by the system.

The kinds of service providers has also evolved through time, with the result that today the market is shared between farmers' organizations, private for-profit consultant firms, and municipal governments. NGOs had an important presence in the first half of the 1990's, but it has tended to decline over time.

Some of the most important design issues that have driven the changes put in place through time, include:

- *Objectives of the system.* The gradual change in objectives from a system that was concerned with increasing production, to one that is now focused on the promotion of viable and competitive commercial projects implemented by farmers' economic organizations
- *Role of farmers in the control of the system.* A shift in the relative roles of the government vis-à-vis the farmers, in determining the objectives of the program at the field level and in selecting and controlling the private organizations that provide the service
- *Content and nature of advisory services to be provided.* The need to diversify the types of advisory services provided by the system, as the challenges faced by small scale agriculture became more demanding with the opening of the economy in the late 1980's. The system started providing only agricultural production advise, and it now is involved in the provision of different types of technical and professional services, including commercial, financial, farm management, post harvest, value adding and legal advise
- *Role of farmers' organizations.* The evolution from a system that provided services to farmers on an individual basis, to one that today works with farmers' organizations
- *Heterogeneity of beneficiaries.* The balance between supporting better off small landholdings with greater economic potential, and providing assistance to very poor households who practice subsistence agriculture, and the need to design differentiated services for each major group of households and farming systems
- *Quality versus quantity considerations.* The trade off between number of households served and quality and intensity of the services provided to each household

A major lesson is that an agricultural extension or advisory system takes a long time to be built. All the stakeholders (the government, the individual farmers, the farmers' organizations, the private service providers) have learned with time, accumulating knowledge and information that have been the basis for the design of new characteristics of the system, aimed at correcting past mistakes or to respond to new challenges. If a country is not willing to invest in this time-demanding learning and evolutionary process, it is unlikely that it can eventually have in place an efficient and effective agricultural advisory service for small scale farmers.

This long term perspective should also be applied to the evaluation or assessment of this kind of technical support systems. It is very common to find that the past performance of a program is evaluated using the criteria that are relevant for current of future issues and challenges, but that perhaps were irrelevant in the past. It is of great importance to recognize that programs of this sort must evolve through different "generations", and that the issues of the first generation are not the same as those of generation 2, and so on.

Is the system sustainable? Even in a relatively long term scenario (e.g., 10-15 years) it is highly unlikely that small farmers can finance 100% of the cost without any form of government subsidy. In this sense, even after two decades and despite the significant reductions in the average cost per farmer, the system is fully dependent on the annual political decision of allocating public resources to fund 85% to 90% of its total cost. However, the system apparently has been able to convince public decision-makers that this is a program worth financing. In fact, since 1983 the budget of PTT-AAS has shown an

average annual rate of increase of 11%, after adjustment for inflation. Even after the large budget increases of the early 90's, over the past six years the annual budget of the advisory services has shown an annual increase of 4.4% in real terms, and it is very likely that the current level of funding (US\$ 22 million per year) will be maintained or perhaps even increased in the period 2000 – 2006.

## REFERENCES

Comisión Interministerial de Fomento Productivo, 1998. Evaluación de Instrumentos de Fomento Productivo. El Programa de Transferencia de Tecnología de INDAP. Ministerio de Agricultura and Ministerio de Economía. Santiago

Edmonds C.M. 1998. Policy regimes, agrarian institutions, and the performance of smallholder agriculture in Chile: three essays analyzing longitudinal survey data on Chilean peasant farms. Thesis (Ph.D. in Agricultural and Resource Economics), University of California, Berkeley, May 1998.

Gómez S., 1991. Nuevas modalidades de apoyo a la pequeña agricultura. El caso de Chile. Estudios Sociales 70: 131-147.

López R. 1996. Determinantes de la pobreza rural en Chile: Programas públicos de extensión y crédito, y otros factores. Cuadernos de Economía 33 (100) pp: 321-343

Namdar-Iraní M. and Quezada X., 1995. Formulación de propuestas locales de desarrollo silvoagropecuario para los principales sistemas de producción campesinos chilenos. In: J.A. Berdegúe and E. Ramírez (ed), Investigación con enfoque de sistemas en la agricultura y el desarrollo rural. Santiago, Chile, RIMISP, p. 147-158.

World Bank, 1994. Chile. Strategy for rural areas. Enhancing agricultura! competitiveness and alleviating rural poverty. Report N 12776-CH of the Natural Resources and Rural Poverty Division. Washington DC, USA, The World Bank. p. 54.

Table 1. Evolution of key characteristics of the system

CHARACTERISTIC	PERIOD			
	1978 - 1983	1983 -1990	1990 - 1996	1997 -Ongoing
<b>Main objective</b>	Increase yields and production of traditional commodities	Increase yields and production of traditional commodities	Diversify production to non-traditional commercial crops	Support market-oriented development projects implemented by farmers' organizations
<b>Number of households</b>	13,800	26,000	50,000	52,000
<b>Service providers</b>	Private for-profit firms	Private for-profit firms	Private for-profit firms NGOs Farmers' organizations	Municipal governments Private for-profit firms Farmers' organizations
<b>Extension methodology</b>	Individual farm visits	Individual farm visits Field days	Individual farm visits Field days Technical trips to other regions On farm experimentation	Unregulated – varies by project
<b>Average subsidy per farmer</b>	US\$ 520 (Jan '00)	US\$ 467 (Jan '00)	US\$ 370 (Jan '00)	US\$ 375 (Jan '00)



Table 2. Specific objectives of the Medium Term Plans of the local groups involved in the system, 1994

<b>SPECIFIC OBJECTIVES</b>	<b>NUMBER OF LOCAL GROUPS</b>
Increase yields and production levels	978
Introduce new commercial crops and farm and enterprises	468
Marketing of products	447
Natural resource management	194
Reduce production costs	80
Add value to primary products	75
Reduce post harvest losses	47
Total number of local groups in the program	1,109

Table 3. Types of service providers

TYPE OF SERVICE PROVIDER	PERIOD			
	1978 -1983	1989	1994	1999
Private for profit firm	100%	92%	40%	38%
NGO			36%	6%
Farmers' organizations			17%	18%
Municipal governments				38%
Others		8%	7%	