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AGRICULTURAL "EXTENSION" IN CHILE:  
A STUDY OF INSTITUTIONAL TRANSPLANTATION<sup>1</sup>

by

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AGRICULTURAL "EXTENSION" IN CHILE:  
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It is the purpose of this article to analyze recent and on-going programs designed to improve the techniques of farmers and farm workers in Chile, and to discuss some aspects of the recent history of such activities. We shall give special attention to the various administrative and institutional arrangements devised for carrying out this general function, and to the role that foreign financing and advice have played in shaping the present situation.

At the outset, we need a term that adequately represents our subject matter. Note that we have put quotation marks around "extension" in the title. This term can't be carelessly used here, because it is too widely understood to represent a specific type of program with specific institutional arrangements. Thanks to Point Four and its successors, extension is everywhere spelled with a capital E, having been translated with its multidimensional connotations, into many languages around the world. In Chile the term calls up images of the U.S. Cooperative Extension Service, the Land Grant College, and the county agricultural extension office. And it starts arguments with Chilean agrónomos whose experience happens to have been with visiting soil conservation or supervised credit experts rather than with agricultural extension specialists.

The problem of extension semantics is evident in the following excerpt from an official report of the Department of Agricultural Extension in the Chilean Ministry of Agriculture:

If extension is defined as a non-classroom educational program aimed at the rural population, with economic and social ends, then we can affirm categorically that only the Department of Agricultural Extension develops true extension programs. If, on the other hand, extension is described as the simple distribution of knowledge, which the present writer considers an error, then it can be supposed that other agencies also do extension work. However, Extension (read the department of) considers that this work is not extension, but mere direct help or technical assistance in the majority of cases.<sup>1</sup>

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<sup>1</sup>Juan Galecio G., Informe del Servicio de Extensión Agrícola de Chile, Ministerio de Agricultura, 1959, p. 11. (Translation by present author.)

Given wide acceptance of this definition, we must warn the reader that we use the term "extension" in a different and more general sense, to represent not a philosophy, a specific methodology or an institution, but the general function of disseminating agricultural technology. By "agricultural extension activity," then, we mean any major organized effort to change the farming techniques of active farmers. This includes "the simple distribution of knowledge" as well as programs that provide resources along with information. It includes supervised and controlled credit. Our list of extension agencies includes those that publish or otherwise distribute technical information or that send agents into the field to teach or provide technical help. We have not studied full-time teaching institutions such as vocational schools, concentrating instead on programs for currently active farmers.

### Bureaucratic Redundancy

The most salient fact about agricultural information agencies in Chile is that there are a lot of them. In 1964 there were at least 11 governmental agencies and eight private and semi-private organizations involved in one way or another in agricultural information and advisory work.<sup>2</sup> There is, of course, some coordination and cooperation among these agencies. Some are specialized and working in areas where their services are not duplicated, and some of the small agencies probably attract foreign funds that would not be available to a centrally administered service. Furthermore, there are persuasive arguments in favor of some duplication of function and overlapping jurisdiction in public institutions as a means of reducing the chances of failure.<sup>3</sup> The gist of these arguments long ago found

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<sup>2</sup>A partial list of government agencies involved in the diffusion of agricultural technology includes: Departamento de Extensión Agrícola, Instituto de Desarrollo Agropecuario, Corporación de Reforma Agraria, Departamento de Defensa Agrícola, Departamento de Conservación de Suelos y Aguas, and Servicio de Cooperación Técnica of the Ministry of Agriculture; Corporación de Fomento de la Producción, Industria Azucarera Nacional, S.A., and Servicio de Equipos Agrícolas Mecanizados; Banco del Estado and Dirección de Informaciones y Radio Difusión de la Presidencia de la República. Private organizations and semi-private agencies include: Corporación de Venta de Salitre y Yodo, Compradores de Maravilla, S.A., Agroservicio, Fundación de Vida Rural, Instituto de Educación Rural, Instituto de Promoción Agraria, Universidad Católica de Valparaíso, and Sociedad Nacional de Agricultura.

<sup>3</sup>Martin Landau, "Some Remarks on the Concept of System as Applied to Institution Building," Paper read at the Conference on Institution Building, Committee on Institutional Cooperation, French Lick, Indiana, August 12-16, 1968.

common sense expression in such adages as "Don't put all your eggs in one basket." Recently they have been more concisely and convincingly formulated in terms of redundancy theory, which states that the probability of failure decreases exponentially as appropriate redundancy factors increase.<sup>4</sup> This principle is reflected in the elaborate "back-up" and "fail-safe" systems that are so prevalent in modern technology, especially in defense, space and aviation. It has been suggested that the same principle operates in social systems (i.e. change agencies) and that duplication of function should not be invariably regarded as wasteful, but rather analyzed, understood, and possibly engineered as a safeguard against failure.<sup>5</sup> In the face of this arresting notion, we hasten to point out that our purpose here is not to condemn duplication as bad in itself. But in rejecting the presumption that all duplication is disfunctional, we cannot accept the counter-premise that all redundancy is good. Surely there is a point of diminishing returns where duplication is concerned. Surely there are different kinds of redundancy with different consequences. Surely it is not always more effective to start a new effort rather than attempt to improve an ongoing one. Surely there is a difference--at least in the short run--between redundancy by design and redundancy by haphazard proliferation.

The value of duplication of function, then, is situation specific, and its test lies not in an a priori judgement, but in an analysis of its consequences. It is in this light that we have examined the phenomenon of bureaucratic proliferation within Chile's agricultural extension effort.

The reasons for this proliferation of agencies are many, among them the oft noted tendency of any bureau to become self-sufficient. The initiation of new service programs for farmers in Chile has always meant the creation of a new extension team. For example, rather than combine the efforts of the State Bank and the Department of Agricultural Extension in a new supervised credit program, the government created the Institute for Agricultural Development (INDAP), which is at once a lending agency and an extension service. Later the Agrarian Reform Corporation was apparently unable to work out effective cooperative arrangements with either the Department of Extension or with INDAP, and created its own extension and supervised credit services.

Another stimulus for proliferation has been the desire to sidestep red tape within the traditional public administration structure. This has led to the creation of autonomous institutes and private and semi-private organizations supported by but not always controlled by the government.

#### The Impact of Foreign Assistance

Ironically, much of this kind of proliferation appears to have resulted from foreign funds and foreign advice intended to improve and coordinate Chile's agricultural development effort. Part of it grows

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<sup>4</sup>Ibid.

<sup>5</sup>Ibid.

directly out of the persistent tendency, which we mentioned earlier, to define extension in organizational rather than functional terms. Foreign money and advice have been spent more often to set up new organizations than to help existing institutions take on new functions. For example, during a period of approximately ten years, monies from the United States have supported, and in some cases helped to create, programs of extension and technical assistance in at least nine Chilean organizations. And where the foreign money and advisors had gone Chilean funds have followed, since these loans have nearly always been given on the condition that they be matched by national finances.

Evidence of both the fact of duplicated functions and the role of foreign assistance in bringing it about can be seen in the following brief history of the Departamento de Extensión Agrícola and related entities in Chile.

This agency, which claims roots in the 19th century, reached bureaucratic maturity in 1948 when it became a full department in the Ministry of Agriculture.<sup>6</sup> At the time it was the only major extension agency in the country, inside or outside the government. Its support was almost entirely Chilean, the main foreign influence coming from the fact that some of its people were trained in the United States.

In 1949, working with the National Health Service and the Rockefeller Foundation, the department started a pilot project called "Plan Coordinado de Extensión Agrícola y Salud Pública de Aconcagua." This was basically an experiment in extension of health and agricultural information. The plan's finances were administered by the National Health Service, but no separate bureau was created. Other departments also cooperated from time to time, notably the Department of Agricultural Research which set up a series of forage demonstrations in the area.<sup>7</sup> For our purposes it is important to note that these agencies apparently succeeded in cooperating without a separate coordinating agency.

The plan had been in operation for about four years when the U.S. Operations Mission, together with the Ministry of Agriculture and other agencies of the Chilean Government, made plans for a new and much larger "pilot project" in agricultural development. These plans were based partly on experience gained in Aconcagua, but unlike the earlier effort, the new scheme included a government bureau to administer a "Plan for Development of Agriculture and Hygiene in the Provinces of Maule, Ñuble, and Concepción," or "Plan Chillán" as it was more popularly called.

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<sup>6</sup>Abstracted from Raimundo Cabrera G. and Inés Acosta, "Historia del Departamento de Extensión Agrícola," August 1955, mimeo on file in Ministerio de Agricultura, Departamento de Extensión Agrícola, Santiago, Chile, p. 13.

<sup>7</sup>Ibid., p. 14.

The administering agency was made up of both U.S. and Chilean personnel and was called "Departamento Técnico Interamericano de Cooperación Agrícola," or DTICA. Housed in the Ministry of Agriculture it was supposed to coordinate the development activities of several Chilean agencies within the project area. In fact the participation of the veteran agencies in the plan itself was minimal. DTICA appears to have duplicated these departments within its area of jurisdiction. This was especially true in the case of the department of extension.<sup>8</sup>

In 1957 the U.S. Operations Mission, cooperating with the Ministry of Agriculture and the National Agricultural Society, created and supported a private agency called the Instituto Agrícola de Asistencia Técnica or Agroservicio. The basic function of this institute was agricultural extension and advisory work. It could be called a farm management consulting service. It received money from the national government (money which would likely have otherwise gone to the department of extension). Technical personnel were provided by the agricultural section of U.S. Operations Mission and equipment came from DTICA, which by this time was becoming increasingly active outside the three provinces that comprised "Plan Chillán." Agroservicio operated in four zones ranging from Arica, near the Peruvian border to Angól nearly 1,700 miles to the south. It did not collaborate with the department of extension and even in Chillán it operated apart from the "coordinated plan" in spite of the fact that it was supported and advised by the same agencies that administered the plan.<sup>9</sup>

In 1958 DTICA began to expand its Chillán extension project to other areas of the country as a result of a new contract called "Plan Nacional de Extensión Agrícola."<sup>10</sup> At the same time DTICA proposed a reorganization of the national service into semi-autonomous regions or zones, a step opposed by the director of the "Departamento de Extensión Agrícola." Other differences of opinion<sup>11</sup> made the collaboration between DTICA and the department less and less collaborative and more and more competitive. In the face of what was openly regarded as competition and because of dwindling support from national and U.S. sources, the Departamento de Extensión asked for technical assistance

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<sup>8</sup> Interview with Juan Galecio, former director of the Departamento de Extensión Agrícola, Santiago, Chile, 1964.

<sup>9</sup> Programa Agrícola del Punto Cuarto en Chile, Informe de la División de Agricultura de la Misión de Operaciones de los Estados Unidos en Chile, September 1959, p. 75.

<sup>10</sup> Ibid., pp. 6-7.

<sup>11</sup> An official report of the differences is contained in the Informe del Servicio de Extensión Agrícola de Chile, Ministerio de Agricultura, Santiago, 1959.

from the Food and Agricultural Organization of the United Nations.<sup>12</sup> This illustrates an important fact about bureaucratic proliferation in Chile: when one foreign source of funds fails an agency is usually able to find modest support from the national budget or from another country, and is thereby able to survive, if only at the administrative level. Once firmly established an agency or bureau seldom disappears, though its original function may give way entirely to the immediate goal of survival. In other words, the "bureaucratic explosion" is the result of a low death rate as well as a high birth rate. This kind of rescue support is usually minimal and seldom sufficient to carry out much of a field program. It contributes to a top heavy effort, with many administrators and few field workers.

In 1958 the Banco del Estado de Chile (State Bank of Chile) decided, largely on the initiative of the U.S. Operations Mission, to start its own agricultural extension service. The idea was to convert the Bank's farm loan operation into a supervised credit program. Three pilot projects were operating by 1964.

In 1960 DTICA helped to finance still another pilot project in yet another agency--this one called "Plan Navidad." This plan, basically an experiment in supervised credit, was carried out in conjunction with CONFIN (Consejo de Fomento de Investigación Agrícola) and with other departments of the Ministry of Agriculture, including a new one called DECAT (Departamento de Conservación de Suelos y Asistencia Técnica) which had just been formed by combining the old departments of Soil Conservation and Agricultural Extension.<sup>13</sup> (This consolidation was undone again after about a year.)

Another bureaucratic footnote to Plan Navidad: in its second year of operation a new agency called the "Departamento de Crédito Supervisado" was created specifically to carry on with the plan and extend it to other areas.<sup>14</sup>

In 1962 the U.S. Operations Mission began to support another private organization which was supposedly carrying out extension activities. This was the Instituto de Educación Rural. In the next three years aid to the IER increased until U.S. money made up nearly a third of its budget. In the same period, government money earmarked for extension was switched from the National Service to IER.

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<sup>12</sup>Interview with former director, Sr. Juan Galecio, of the Departamento de Extensión Agrícola, Santiago, Chile, 1964.

<sup>13</sup>Plan Navidad, 1960-1962, Ministerio de Agricultura, Santiago, Chile, pages not numbered.

<sup>14</sup>Ibid.

Another significant step toward dispersion of the extension function came in 1962 when, in response to Punta del Este, there was an organizational revision within the Ministry of Agriculture. For example, the Departamento de Extensión Agrícola lost 28 ingenieros agrónomos (35 percent) to new agencies created that year.<sup>15</sup>

These agencies were the Consejo Superior de Fomento Agropecuario, the Instituto de Desarrollo Agropecuario and the Corporación de Reforma Agraria, more commonly known as CONSFA, INDAP and CORA respectively.

INDAP became a legal heir of DTICA and CONFIN and has been represented as an outgrowth of "Plan Navidad." With much of the equipment and personnel once occupied in Plan Chillán, this new agency is charged with carrying out a program of technical assistance and supervised credit for small and medium-sized farmers. As of 1964 it had a \$10 million loan from the Inter American Development Bank.

This agency was created despite arguments by officials of the Departamento de Extensión Agrícola and the Banco del Estado that they could, working together, carry out this program without creating a new bureaucracy.<sup>16</sup> One counter argument was that supervised credit is different from extension and that a separate team was needed.

As of 1964, the Departamento de Extensión had almost no outside financing and a very small share of the national budget. Its finances and facilities were so depleted that agents were in many cases forced to depend on other departments. For example, the entire extension service had some 32 vehicles--23 of them on loan from INDAP.<sup>17</sup> In 1959 it had 56.<sup>18</sup>

CORA, the other corporation created by the agrarian reform law, is responsible for technical assistance to the new landowners within its colonies making still another extension service, again partly financed by foreign funds.

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<sup>15</sup>Departamento de Extensión Agrícola, Organización, Personal y Funcionamiento, 1963, p. 14.

<sup>16</sup>Interview with Juan Galecio, former director of the Departamento de Extensión Agrícola.

<sup>17</sup>Departamento de Extensión Agrícola, Organización, Personal y Funcionamiento, 1964, p. 19.

<sup>18</sup>Informe del Servicio de Extensión Agrícola de Chile, Ministerio de Agricultura, Santiago, Chile, 1959, p. 18.



This review of foreign support for extension in Chile is not exhaustive. However, these brief case histories do establish the fact of duplication and raise questions as to its cause and its consequences.

Decisions on the part of international agencies to support, and in some cases to help create extension programs in so many diverse agencies are undoubtedly made with good intentions and at least sometimes with an eye to problems not apparent to the casual observer. It is seldom possible to say who is right and who is wrong in arguments between agencies and departments. We do not suggest that it is possible to maintain anything like perfect coordination in any development effort, much less a bilateral one. And as pointed out earlier, we do not wish to condemn redundancy as bad in itself. If the extension function were being carried out, the matter of proliferation would be quite uninteresting. But the fact that it is so apparently not being carried out leads us to ask whether the proliferation may be partly to blame. At the very least we can call attention to the fact that international assistance may very well have had the effect of concentrating scarce resources at the administrative level, thereby impairing the development of effective linkages between agencies and clientele and contributing to displacement of the goals for which the agencies were established.

### Existing Agencies

Of the nineteen or so organizations that carry on some extension functions, we selected ten for closer study. These include all of the large ones as well as some smaller ones whose programs include experimentation with novel methods. Many of these have been mentioned in the preceding pages, but for purposes of identifying them we have included the following brief summary.

1. The Departamento Nacional de Extensión Agrícola (National Department of Agricultural Extension in the Ministry of Agriculture) is charged with providing educational and advisory services to all farmers. In fact it reaches mostly large farmers. Its operations include demonstrations, farm visits, meetings, administration of youth clubs, and organization of farmer committees. Its Sección de Divulgación publishes bulletins with runs of 10,000 each. In 1964 some 20 such bulletins were available.<sup>19</sup>

2. The Instituto de Desarrollo Agropecuario (INDAP) (Institute for Agricultural Development) is a semi-autonomous agency, responsible not to the Minister of Agriculture but directly to the President.

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<sup>19</sup>Interview with Vice-Director, Departamento Nacional de Extensión Agrícola, Ministerio de Agricultura, Santiago, June 1964.

Its main function is described as providing supervised credit for small farmers. In fact it offers very little supervision or technical advice. It retains some control over the borrower's use of technology by lending mostly in kind rather than cash. Its loans are very small (average about U.S. \$60.00 in 1964)<sup>20</sup> and go mostly for seed, fertilizer and machinery rental costs.<sup>21</sup>

3. The Corporación de Reforma Agraria (CORA) (Agrarian Reform Corporation) is also semi-autonomous. It is charged with carrying out the government's land reform program. Extension functions are the responsibility of its Department of Technical Assistance and Cooperatives. As of 1964 it had about 6,000 colonists under its jurisdiction. In 1964 a new sub-department--supervised credit--was conducting studies of colonies and processing loan applications. The program was to be financed by a \$3 million loan from the Inter-American Development Bank. Very few colonists (about 50) had loans from CORA at the time. This situation has changed and most of the colonists settled since 1964 have received supervised credit.

4. The Instituto de Promoción Agraria (INPROA) (Institute for the Promotion of Agriculture) is a private agency associated with the Catholic Church. It was organized to carry out land reform on some Church-owned farms. Like CORA it has technical assistance and supervised credit programs for its colonists. Though very small, these programs were much more active than those of CORA in 1964. The program was particularly interesting for its reliance on compulsion in promoting new practices. We will discuss this facet of its program in detail in a later section.

5. The Banco del Estado (State Bank) has a small (average 500 loans in 1961-63)<sup>22</sup> supervised credit program in three zones in addition to its regular farm credit operation which covers most of the country. As we pointed out earlier, extension activities (supervision) were added at the suggestion of the U.S. Operations Mission which provided two consultants and other support for the program.

6. The Industria Nacional Azucarera Sociedad Anónima (IANSA) (National Sugar Industry, Inc.) is legally a private corporation, though the Government Development Corporation (CORFO) owns 90 percent of its stock. It was established in 1953 as a result of studies and experiments that started in 1939. Its purpose is to increase national production of sugar beets with the ultimate goal of self-sufficiency in sugar. At present Chile imports about half its sugar.

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<sup>20</sup> Hugo Ossio Sivilá, El Crédito Supervisado en Chile, Memoria para optar al diploma de Graduado en Economía Agrícola, Programa de Estudios Económicos Latinoamericanos Para Graduados, Santiago, Chile, 1964, p. 21.

<sup>21</sup> Ibid., p. 29.

<sup>22</sup> Ibid., cuadro 5.

In 1952 it imported virtually 100 percent. IANSA has a vertically integrated program which includes production contracts with farmers as well as processing and marketing of sugar beet products. It has a vigorous research program<sup>23</sup> and its supervised credit and technical assistance are widely regarded as the best in Chile. An estimated 55 percent of its contracts are with small farmers (under 10 hectares).<sup>24</sup> The contract obligates the farmer to follow recommended practices, a point which we will discuss at some length in a following section.

7. Compradores de Maravilla Sociedad Anónima (COMARSA) (Sunflower Buyers Incorporated) is a private concern which contracts with farmers for production of sunflower and rape seed. Unlike IANSA it does no processing. It does provide some credit and technical advice to its contractors, but these are minimal.

8. The Compañía Chilena de Tabacos (Chilean Tobacco Co.) is also private, and largely foreign owned. It also contracts directly with farmers, many of them small farmers and sharecroppers. Like IANSA, it is vertically integrated, provides credit and technical advice, buys the crop, manufactures and sells finished tobacco products.

9. Agro-servicio (Agri-service), which, as we pointed out, was started with U.S. Operations Mission support, was by 1964 a fully private entity. It provides farm management and investment planning services on a paid consultant basis. Its clients are mostly large farmers.

10. The Instituto de Educación Rural (Institute for Rural Education) is a private organization associated with the Catholic Church. Its main function is to provide religious and vocational training for young people on a full-time classroom basis. In 1964 it had 23 schools offering courses of three to five years at about the high school level. Some 10,000 students had passed through the schools in 10 years' time.<sup>25</sup> Selected graduates receive a short leadership training course and return to their communities as delegados with part-time salary support from the Institute. Their work theoretically includes farm visits and technical advice for farmers. In practice, most of their time is spent in what would normally be called social work, mostly

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<sup>23</sup>In 1964-65 some 31 research projects were carried out. These included fertilizer trials, varietal tests, and parasite control experiments.

<sup>24</sup>Interview with the Director of the Departamento Agrícola de la Industria Azucarera Nacional, Santiago, July 1964.

<sup>25</sup>Interview with the General Secretary, Instituto de Educación Rural, Santiago, November 1964.

with youth groups.<sup>26</sup> There is undoubtedly some informal contact between IER delegates and practicing farmers, and while this may have implications for the spread of technology it is not the kind of organized extension program to which the present study is addressed. Therefore, except for this and the previous brief reference, we have not included it in the study.

Some salient features of nine of the above agencies are summarized in Table I.

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<sup>26</sup>Ibid.

Table 1. Salient Features of Nine Extension Programs in Chile as of June 1964<sup>a</sup>

Dept. of Ext. <sup>b</sup>	Staff		Scope		Farmers Reached	Years of Operation	Foreign Aid		Level of Compulsion	Non-Advisory Services
	Adm. & Ag. Service Tech.	Of- fices	Prov- inces	Past '64						
INDAP <sup>c</sup>	237	326	77	25	36,000	2	High	High	Moderate <sup>d</sup>	Credit
CORA	378 <sup>e</sup>	81 <sup>e</sup>	13 <sup>f</sup>	13 <sup>f</sup>	1,500 <sup>f</sup>	2	Low	High	Moderate	Credit, Market, Co-op
INPROA <sup>g</sup>	23	7	7	5	214	2	High	High	High <sup>h</sup>	Credit, Market, Co-op
Banco del Estado <sup>i</sup>	6	11	3	3	480	5	High	Low	Moderate	Credit
IANSAJ <sup>j</sup>	46	52	10	14	3,039	9	Low	Low	High	Credit, Market
COMARSA <sup>k</sup>	17	12	7	18	7,380	10	Low	Low	None	Credit, Market
Tabacos <sup>l</sup>	11	7	3	2	380	10	<sup>m</sup>	<sup>m</sup>	High	Credit, Market
Agro-Servicio <sup>n</sup>	14	12	4	11	400	7	High	Low	None	Livestock Buying
<b>TOTALS</b>	<b>784</b>	<b>578</b>	<b>168</b>		<b>58,193<sup>o</sup></b>					

<sup>a</sup>There have, of course, been many changes since 1964, especially in CORA and INDAP which have been expanded by the Frei government. As of this writing we have been unable to get 1968 data on these agencies.

<sup>b</sup>Figures provided by Vice-Director of the Departamento de Extensión Agrícola, Santiago, June 1964.

<sup>c</sup>Figures provided by Chief of the Supervised Credit Section, INDAP, Santiago, July 1964.

<sup>d</sup>By Moderate compulsion we mean that credit is given in kind rather than cash. This gives the agency effective control over the kinds and quality of some inputs used.

<sup>e</sup>William C. Thiesenhusen, "Experimental Programs of Land Reform in Chile," Ph.D. Thesis, University of Wisconsin, 1965, p. 341.

<sup>f</sup>Data provided by the head of the Department of Technical Assistance, CORA, Santiago, July 1964. The 1,500 figure is his estimate of the number of colonists actually visited by CORA technicians during the year.

<sup>g</sup>Figures provided by the Executive Secretary of INPROA, Santiago, August 1964.

<sup>h</sup>By High compulsion we mean the agency greatly limits the farmers' choice on a broad range of inputs and practices.

<sup>i</sup>Hugo Ossio Silivá, "El Crédito Supervisado en Chile," Memoria para optar al Diploma de Graduado en Economía Agraria, Programa de Estudios Económicos Latinoamericanos para Graduados, Santiago, Chile, 1964, pp. 10-24.

<sup>j</sup>Figures provided by the head of the Agronomic Department of IANSA, Santiago, January 1965.

<sup>k</sup>Figures provided by the Agricultural Director, COMARSA, Santiago, 1965.

<sup>l</sup>Figures provided by the central office of the Chilean Tobacco Company (Compañía Chilena de Tabacos), Valparaíso, February 1965.

<sup>m</sup>Funds for this operation are foreign, but of private rather than government origin.

<sup>n</sup>Figures provided by the central office of Agro-Servicio, Santiago, July 1964.

<sup>o</sup>This total undoubtedly includes some double counting and thus likely over-estimates the number of farmers reached.

This brief summary serves primarily to identify the agencies studied and to give a rough idea of the scope of extension type activities in the country.

The estimated total number of farmers reached includes raw estimates by administrators, especially in the cases of CORA and the Department of Extension, which did not have actual records of contacts with farmers. Programs that include loans or contracts do, of course, have a fairly exact count of the farmers with whom they deal. In any case, it is probably safe to conclude that somewhere in the neighborhood of 50 thousand to 60 thousand farmers were receiving some kind of technical assistance and advice at the time of the study. This represents about 20 percent of the active farmers in Chile (the 1965 census shows 253,492 farming operations in the country).<sup>27</sup>

It should be noted here that some of the above programs have changed a good deal since 1964. We have not presented a more exhaustive description of each or updated our figures, partly because the data are hard to get (especially those that concern budgets), and also because we are more interested in the general modes of operation and the ideas they embody than in organizational details and scope.

Our analysis of these programs has proceeded along three general lines:

1. The role of foreign aid and advice.
2. The integration of extension with credit and marketing services.
3. The use of compulsion in extension and assistance programs.

### Transplanted Doctrine

We have already dealt at some length with the impact of foreign programs on the organizational aspects of Chile's extension effort. There has also been a wholesale transfer of extension philosophy and methodology from the United States, especially regarding administrative and institutional arrangements for carrying out extension functions. From its inception as a ministerial bureau the Departamento de Extensión Agrícola has borne many similarities to its counterpart in the United States. In the early years this similarity was more in philosophy and method (i.e., demonstrations, farm visits, meetings) than in structure, and was largely a result of the fact that some of the department's people had been to school in the United States.

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<sup>27</sup>IV Censo Nacional Agropecuario, Año Agrícola 1964-65, Resumen del País, Cifras Preliminares, Dirección de Estadística y Censos, Santiago, December 1966, p. 2.

Over the years the similarity has increased. The division of the country into pseudo regions and zones approximating U.S. counties, the introduction of subject matter specialists, supervisors, and home agents, the initiation of 4-C clubs for rural youth and the organization of work along project and campaign lines were all instigated largely by U.S. advisers.<sup>28</sup> In 1965 an AID financed team of extension experts from California visited Chile. It recommended a new organizational structure, indicating that "...studies of Extension administration are not necessary. What is necessary is the desire to implement an organization designed to perform the Extension educational function."<sup>29</sup>

It went on to suggest, among other things, that:

1. "The Director of the Extension Service should be attached directly to the minister's Agricultural Development Planning and Coordinating group...."<sup>30</sup>

2. Extension must be "...strictly educational in function, completely free from regulatory duties, servicing credit programs..." Extension should not become involved in "...'crash' programs of current interest to the government. Such programs may be necessary but they should be handled by the group involved solely with the promotion of special projects."<sup>31</sup> Too much involvement of Extension personnel in such programs (i.e., the National Wheat Campaign) "...may limit their usefulness...for other areas of work."<sup>32</sup>

3. "The Extension Service should be designated as the chief government organization through which technical agricultural information is disseminated...."<sup>33</sup>

4. A new sub-department should be created in the Ministry and charged with coordinating the activities of the several extension-type agencies.<sup>34</sup>

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<sup>28</sup>Galecio, op. cit.

<sup>29</sup>"Preliminary Report of the University of California Extension Team to the Chile-California Program Concerning the Agricultural Extension Function in Chile," USAID/Chile, February 1965, p. 3.

<sup>30</sup>Ibid., p. 6

<sup>31</sup>Ibid., p. 3.

<sup>32</sup>Ibid.

<sup>33</sup>Ibid., p. 4.

<sup>34</sup>Ibid., p. 4.



5. A "pilot Extension effort" should be established in the Maule River Basin and Zone VII.<sup>35</sup>

6. Small farmers and land reform colonists should be among the clientele of Extension only if "social goals" are considered more immediate than production goals, since limited staff and budget will make it very difficult "...to attain the social goal of working with small farmers who will have little impact on agricultural production, and yet exert technical assistance efforts to those larger farmers who are in a position to quickly respond to technical production and market information."<sup>36</sup>

7. U.S. advisers should work closely with the new Extension Service for "...a minimum period of five years. However, continuity need not necessarily be provided by the same individuals for all this time span...."<sup>37</sup>

The visiting experts backed up their proposals with a good deal of insistence:

"Should there be immediate action on the part of the government of Chile to make organizational changes that substantially satisfy the above fundamental conditions, the Chile-California Rural Extension Project personnel then recommend continued and expanded cooperative work, both in the organizational area and in field technical assistance. If such changes are not made, the value of future technical aid in the production sector of agriculture is open to serious question."<sup>38</sup>

On the whole the report had a very familiar ring, calling for another reorganization, for a new coordinating bureau, for short-term technical advisers, for yet another pilot project, and for avoidance, by all means, of "political" issues.

At the heart of this kind of advice is a notion that the basic communications task (i.e., extension) is one of persuasion and attitude change. This may be appropriate to a modern agriculture in an industrial nation, but it ignores the economic, institutional and other situational constraints that greatly limit the utility of a strictly informational or educational program for the vast majority of Chilean farmers. Besides advocating a wholesale transfer of modern U.S. institutional forms, this kind of advice denies the history of these institutions in our own country by implicitly ignoring the fact that

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<sup>35</sup>ibid., p. 4 and pp. 20-36.

<sup>36</sup>ibid., pp. 9-10.

<sup>37</sup>ibid., p. 4.

<sup>38</sup>ibid., p. 7.

early extension workers in the United States were very much involved in controversial and "political" activities. In Wisconsin these included zoning schemes, re-settlement projects, consolidation of schools, tenancy legislation, rural electrification and other works projects, and organization of farmers into co-ops and pressure groups.

In short, foreign aid efforts have been marked by a tendency to see the modernization process primarily as one in which modern technology is transferred to backward nations. Foreign advisers have often failed to see that development is also (and more importantly) a process by which ideas emerge and are tested and adapted within the specific problematic situations of developing nations. Consequently many of the recommendations of outsiders, however good they may have been in the abstract, have been irrelevant to Chilean conditions. It is, for example, quite impractical for Chile to maintain a purely informational extension program that stays away from "political" issues. The surest way to make extension irrelevant and ineffectual in Chile is to isolate it from land reform, credit, and other development programs that are and will be underway in the countryside.

Another mark of foreign aid to Chile's extension effort is that support for any given project or program is usually short term and therefore without follow-up research to evaluate results.

#### Some Implications for Policy

In future efforts to help Chile modernize her agriculture the industrial world would probably be well advised to:

1. Be very cautious about creating or supporting new programs.
2. Support home-grown rather than transplanted institutions, offering less advice and maintaining less control over the shape and direction of such programs.
3. Support and encourage research efforts to evaluate ongoing programs. (A simple practical step in this direction might be made by establishing a scholarship program for students who wish to conduct undergraduate or graduate research on extension issues.)

#### Package Programs

As to the general kinds of extension programs which the United States might support (with money and materials rather than technical advice), clearly the most effective in Chile are those that form a part of larger programs that provide a package of services to farmers.

As we pointed out earlier Chile has three such programs which are organized on a commodity basis.<sup>39</sup> They give credit, distribute inputs, and provide a firm marketing contract with the price fixed before planting time. Where credit and marketing institutions are absent or geared to the needs of very large farms, this idea of integrating services on a commodity basis appears to be fruitful. Technical information is of little value, especially to the small farmer, unless it is accompanied by other changes that enable him to produce a surplus and sell it profitably.

This approach may be especially useful in an agrarian reform situation.<sup>40</sup> Contracting the production of certain key crops with new landowners would seem to have several advantages:

1. Colonists would have much needed market security during the crucial first years. A more conventional extension program, even if it succeeded in raising production, would not provide a secure market.

2. By concentrating on a single crop within a given area, agents would be able to give better advice and to develop more and better rapport with their clientele. Farmers in Chile seem to have very little respect for general extensionists, but a very high regard for specialists who work in the sugar beet program.<sup>41</sup> Apparently being part of an integrated commodity-oriented program makes information service more effective, not only because the other services make it possible to use the information, but because there is more respect for the specialist than for the generalist as an extension agent.

Organizing technical assistance on a commodity basis may also permit the government to concentrate scarce service resources and personnel on crops most needed for import substitution or export. It may be particularly appropriate to Chile's current attempt to increase fruit production.

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<sup>39</sup> IANSA, COMARSA and Tabacos. Of the three IANSA is the most significant, since Tabacos is very small and COMARSA offers little credit or advice.

<sup>40</sup> In fact both INPROA and CORA have incorporated many aspects of these integrated programs into their operations, and both have made arrangements for some colonists to work with IANSA.

<sup>41</sup> This is a commonly expressed impression in Chile, corroborated by preliminary findings of a survey conducted by the author as a part of a separate study, now in process.

As the economy develops and service institutions improve in general, technology introduced for the contracted crop would likely spread to others. A rapid and spontaneous transfer of technology in this way is not to be expected since deficiencies in both input and output markets would continue to exist for all but the contracted crops. Still the educational groundwork would have been laid and would probably have an effect on the later adoption of similar techniques in other crops.

Some spread is already evident, notably feeding of silage and beet pulp to animals, improvement of the general rotation pattern, and increased use of fertilizer and pesticides.<sup>42</sup>

### Compulsory Adoption

Another interesting facet of these programs, especially that of IANSA, is the high degree of control exercised over the technology used by contracting farmers. This brings us to our third point--the use of compulsion in technical assistance work. In the case of IANSA the production contract obligates the farmer to follow recommendations as to acreage, rotation, seed selection, planting and harvesting dates, fertilizer rates, pest control and other technical aspects of production.

The program appears to be effective. Compliance is virtually 100 percent, and beet yields are among the highest in the world (average 379.4 quintales per hectare<sup>43</sup> or about 16.4 tons per acre). This represents a yield increase of about 250 percent since 1953-54 when the first sugar beet processing plant was constructed. This increase came quickly, with yields nearly doubling within the first three years. Yields have remained high while the number of acres and growers each increased about tenfold.<sup>44</sup>

The farmer signs up voluntarily, and presumably knows that by doing so he is taking on a whole package of technology along with the production contract. But for any specific innovation the compulsion greatly reduces choice. It probably also greatly alters the normal pattern of practice adoption which has been shown many times to proceed through several stages, including awareness, interest, evaluation,

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<sup>42</sup>These are preliminary observations growing out of interviews with farmers who grow sugar beets under contract to IANSA. (See preceding footnote.)

<sup>43</sup>IV Censo Nacional Agropecuario, op. cit., p. 45.

<sup>44</sup>Unpublished data provided by the Central Office of IANSA, Santiago, February 1966.

trial, and adoption.<sup>45</sup> In a compulsory program, these stages may get very much out of sequence. Unless one defines as "adoption" the simple signing of a contract, one can only conclude that individual practices which make up the package are "adopted" before the adopter has tried, evaluated, or even evinced interest in them.

One could hypothesize that a compulsory program of this type would restrict freedom, destroy initiative, decrease self-reliance and increase the farmer's tendency to "let somebody else make his decisions for him." This would seem to be especially plausible in a land reform situation where generations of traditional servitude and dependence may heighten the possibility that such a program would merely substitute a new form of paternalism for the old.

These issues are of more than academic interest, since both of Chile's land reform agencies (CORA and INPROA) make use of a considerable amount of compulsion in their technical assistance programs. Unlike IANSA they do not deal with single commodities, nor do they operate on the basis of production contracts. However, their technicians do make most of the management decisions on reform colonies in the early years of reform.

Some aspects of learning theory would suggest that repeated use of a rewarding (i.e., profitable) technique would, regardless of coercion, lead to learning and attitude change. On the other hand, Festinger's theory of cognitive dissonance suggests that coerced compliance would not necessarily result in favorable attitudes toward the technique.<sup>46</sup>

It is not our purpose here to fully develop or test these theoretical implications--they demand further research. However, we can, on the basis of the present study, relate a few general impressions about the results of compulsory programs of IANSA and INPROA.

Responses of IANSA farmers seem to vary somewhat according to farm size, previous use of technology, and length of participation in the sugar beet program. Many growers, especially those with medium and large operations, seem to be little aware of the contractual obligations and possible sanctions for non-compliance. They tend to regard the requirements as recommendations which they voluntarily follow.

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<sup>45</sup>A complete discussion of these stages can be found in Everett M. Rogers, The Diffusion of Innovations, Glencoe, Ill.: The Free Press, 1962, pp. 81-86.

<sup>46</sup>These theoretical issues are discussed briefly in Leon Festinger, A Theory of Cognitive Dissonance, Stanford University Press, Stanford, California, 1957. (See especially pp. 90-95.)

Small farmers who have little previous experience with modern technology sometimes resent and even resist some of the practices, especially the very high fertilization rates, which they tend to regard as extremely expensive. This is more evident among new participants than among veteran growers. INPROA exercises control over the technology used by direct management rather than by contract. The land reform program proceeds by stages: colonists spend a year or two as sharecroppers and a couple of years as renters before they receive title. During the transition the farm is operated as a unit with INPROA providing compulsory credit and supervision. The colonists are encouraged to form a cooperative and to participate in the management decisions, but as owner of the land, INPROA retains veto power.<sup>47</sup> By giving credit in kind instead of cash, INPROA has been able to insist on the use of hybrid corn, fertilizers, herbicides and other practices. It has also introduced new crops.

It is important to note that new practices are being applied, many of which would not be used without INPROA's insistence. It is also quite evident that the pressure has caused some resentment--more so than in the case of IANSA. For example, the president of the cooperative on one colony complained about having to fertilize at a rate that he considered excessive and at having to plant a variety of corn which, he claimed, gave very poor results.

On another colony, where yields have been better, there is still some resentment. Several colonists complained that they were being obliged to sow wheat even though the best time to plant had long passed. They were convinced that the crop would fail and that planting it would make them late with their other crops.

There is also some question as to how many of the colonists are really "adopting" the new practices, in spite of the fact that most are applying them.<sup>48</sup> This is especially true where yields have been low, but even where they have not, some colonists show signs of indifference. For example, when asked if they knew about hybrid corn, 10 of 27 said "No" even though they had planted it the year before. They all knew that the corn INPROA had brought was supposed to be special, but there were several who did not know it by name, and who did not know that the seed had to be renewed every year. It was almost as if they did not think of the crops as theirs--considering themselves to be working for wages, just as before.

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<sup>47</sup>A complete description of INPROA's plan is contained in William C. Thiesenhusen, Chile's Experiments in Agrarian Reform, Land Economics Monographs No. 1, University of Wisconsin Press, 1966.

<sup>48</sup>This may be much like the situation on traditional fundos where inquilinos use modern practices on the owner's land, but make little or no effort to apply them to their own plots.

It is worth noting that such colonists are probably the very ones who would not respond favorably to conventional extension and credit programs and in addition, that their indifference and resentment may be transitory.

### Summary

To summarize the salient points of this paper:

1. Chile's agricultural extension effort is small and marked by a tendency toward bureaucratic proliferation and duplication of function.

2. This tendency appears to have been stimulated in part by foreign aid and advice which has been offered first to one and then another agency in search of bureaucratic agility and quick results. Foreign assistance has included little in the way of evaluation or research, and a great deal in the way of direct transplantation of ideas about organization and methods.

3. Programs that have been most effective in introducing new technology in Chile have offered credit and marketing services as well as technical advice and have been vertically integrated and specialized.

4. These same programs, and the land reform effort as well, have employed considerable compulsion in their promotion of modern practices. The compulsion clearly speeds adoption. Its other consequences on farmer attitudes are less clear and should become the object of a further study.