

**The Role of Middlemen in Potato Production in Cochabamba, Bolivia;
Financial Aspects of Sharecropping¹**

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1 Abstract

Overgeneralization with regard to social and economic structures can cause serious problems in the understanding of peasant production systems and lead to the prescription of inappropriate alternative strategies. The financial problems and their solutions for potato production in an underdeveloped economy are illustrated in an analysis of production financing through sharecropping contracts in Cochabamba, Bolivia. On the surface, potato sharecropping middlemen (and women) seem to reap inordinate profits when compared to European or North American financial standards. Nevertheless, they serve as financiers in a capital poor production environment, working with a capital intensive and risky product. Comparisons of returns to sharecropping partners suggest that these arrangements are favorable and economically rational for farmers as well as for capitalists. It is suggested that the involvement of middlemen may be important for the improvement of potato production.

1. Data presented is based on field work carried out in 1978-1979, financed by the Fellowship Program of the Inter-American Foundation. Field logistical support and many insights were provided by the staff and administrators of DESEC -Centro para el Desarrollo Social y Economico- in Cochabamba. Information presented here is present in a more complete form in Jones 1980.

2 Introduction

One of the greatest problems in the analysis of agricultural development problems is overgeneralization regarding production conditions and constraints from one country another, especially when comparisons are made between developed and less developed countries. One example of this danger can be taken from the role of middlemen² in the potato production and marketing process in Cochabamba, Bolivia. There, as in many areas, middlemen are thought to impede agricultural development, by taking inordinate profits on the basis of their monopsonistic position when acquiring products in the countryside. Nevertheless, in Cochabamba a case can be made that the middlemen serve a worthwhile financial and technical role in the production process if their activities and profit rates are viewed in a larger production context. While there are many clear cases where middlemen appropriate farmers' profits, the roles of different actors in the production process depend on many highly localized factors, including prices, taxes, individual liberties, poverty, etc. The variations in economic roles imply different production strategies and production constraints, and it is argued here that middlemen are an integral part of the production process in Cochabamba and may provide a key to technical improvement.

2. In Cochabamba, these are known as "rescatistas" or "rescatiris" in the common local usage. A large percentage, possibly more than half, of the potato "middlemen" are women; the term then will be used here in a generic sense.

3 Potato Marketing.

Data presented here are based on field work in the Pocona Valley, which is a potato production area in the Department of Cochabamba. Cochabamba is located in the band of intermediate altitude valleys leading down from the altiplano to the Amazonian lowlands (See Map). The Pocona Valley bottom lies at 2800 m, and is relatively low compared to the major Bolivian potato production areas. Its lower altitude gives it a special advantage in potato marketing, since early potatoes catch the top of the market before the higher altitude harvest matures and floods the market.

A major feature of the production environment of Cochabamba are the middlemen who buy and transport potato for sale to Cochabamba. These middlemen have two distinct forms of operation; in some cases, they sharecrop with farmers, supplying inputs in exchange for part of the harvest. In others, truckers simply arrive in regions where potato is known to be harvested at a certain time, and begin looking for fields which are being harvested or which are ready to be harvested. Purchase prices are negotiated in the field on the basis of market conditions and potato quality; the potato is paid for in cash, and the middleman trucks it to the urban market in Cochabamba as soon as it has been harvested and loaded on the truck. Since the potato market is erratic during the harvest period, ~~and~~ middlemen are generally thought to make a good living, if not a "killing" from windfalls due to unpredictable price changes. Logically, the same fluctuations could result in losses, but the general image is that middlemen benefit from price movements at the expense of the farmers.

There are a significant number of middlemen who participate in

3. These arrangements in all their different forms are called "compania", and the parties involved are "companeros".

production through sharecropping arrangements³. The motivation for the middlemen's sharecropping activities is to secure supplies of potato for sale (thus reducing "search time" for ripe potato during peak price periods), and to add production profits to their marketing profits. As their contribution to the sharecropping arrangement, middlemen supply fertilizers and other chemical inputs such as pesticides. In many cases, middlemen also supply seed to the farmers, since seed represents a major production cost, and it is recognized that the introduction of non-local seed varieties can improve production. This seed may either be purchased at harvest by middlemen, or it may be produced through sharecropping arrangements. Despite their key position in production, middlemen have generally been ignored for potato production improvement because of the suspicion that their incomes are gained at the expense of producers. This suspicion also applies to their sharecropping activities, where they are thought to take unfair advantage of their positions to extract disproportionate shares of production.

4 Financial Problems of Potato Production

Capital is a scarce factor of production in Pocona, in the sense that all but the wealthiest farmers must seek sharecropping "capitalists" to share the costs of potato production. The shortage of capital is a usual condition for peasant economies, but in the Andes the capital scarcity problem is made even more acute by the high cost of planting potato, the major food crop. A comparison of costs of production figures shows that potato production requires an outlay three times as large as for haba, the next most expensive crop (see Table 1).

The nature of potato production evades some of the normal economies of peasant production. One example is the production of seed. Although for grain crops seed represents a small amount of the harvest which can be set aside at harvest time, with potato, this economy is lost due to the large percentage of the crop necessary for seed: as a proportion of the total average output, seed for potato represents 12%, while corn requires only 3.3%. The expense of potato seed is exaggerated in Pocona due to the problems of potato production at low altitudes, where disease affects seed quality. Another of the implicit economies of peasant production is that seed is acquired at a low "price"; the farmer economizes by not having to pay transportation and marketing costs (since it comes from his own fields), and it is acquired at a time of abundance when even the opportunity cost (i.e. the income foregone by not selling the seed) is very low. Poconenos enjoy neither of these benefits. Since their own seed cannot be used in the valley, they must buy seed from others; the situation is made even worse by the fact that Poconenos must buy seed at higher prices than what they usually receive for their product. The acuteness of this problem is clearly illustrated by a comparison of the cost of seed as a component of total cost of production; the cost of potato seed is 5400 pesos, while for haba the cost is only 720. (See Table 1).

Although it theoretically would be possible to ameliorate high seed costs through the establishment of non-market relationships within a "verticality" framework (Murra 1975), this only occurred to a limited extent in Pocona. Commercial seed sources are periodically shifted, due to a decline in the quality of seed from a given source. This decline may have been the result of disease problems, changes in seed producers, scarcity of seed from good producers due to increased demand, etc., although no clear answer could be elicited from the Pocona farmers. Commercial seed purchases were not tied to any seed production area, so they could be changed when technically

necessary. Even farmers who acquired seed through local social networks recognized that the "imported" seed was superior in many cases, and contemplated changing sources.

The expensiveness of potato production is compounded by the use of chemical fertilizer, since no other crop receives nearly the fertilizer input that potato does. A calculation of the costs of fertilization per crop would not be very realistic, since the one application for potato is also expected to suffice for the following crops with its residual effects. Nevertheless, the cost of fertilization is a cost that must be paid at the time of potato planting, which only adds to the financial burden at that time.



5 Types of Financing

In the Pocona Valley, there are two forms of agricultural financing; credit and sharecropping. Sharecropping is by far the most common form, and its flexibility permits a wide range of arrangements to accommodate different situations of farmers and financiers.

While bank sponsored credit was available in 1978 at 13% annually, it is difficult for peasants to acquire. Banks require paperwork such as land titles and tax receipts that most peasants cannot produce. Banks are also located in the city, and the application for a loan will require competency in Spanish and the ability to write. Further, the process of taking out a loan may require a stay of a week or more in the city, in order to see the proper bank officials, fill out forms and have them notarized, land titles verified, etc. These conditions make it virtually impossible for poorer farmers to work through the bank, and the total time and investment of time

and effort make it uneconomical to take out loans of less than 40,000 pesos, which is more than what an average farmer would need.

The more common form of credit is the personal loan. These loans are fairly formal; a contract is drawn up and notarized, both parties getting a copy of the contract. Most loans were made for 5% monthly, from which the Poconenos calculate an annual rate of 60% (compounding is never discussed). These loans are too expensive to be used in agricultural production and they are used most commonly to meet emergencies, such as illnesses. These loans have an indefinite period, but there is little default; even though not explicitly stated in the contract, personal possessions and land are collateral and can be demanded as payment if the loan is foreclosed. There were no repossessions for foreclosures in 1978-1979, but several pieces of land were sold to pay off debts, although not all sales were to meet private debts. The most notable liquidation was to pay for a 13% annual bank loan.

Most of the land around Pocona is planted in some sort of sharecropping arrangement. A variety of arrangements are worked out by breaking production down into four classes of inputs, to which correspond equal shares of the production; the four inputs are land, labor, seed and chemicals (fertilizers principally). While it is possible to have each input contributed by a different individual, this is rare. The most common arrangement is between two individuals, and slightly less common is between three.

In its ideal four quarter-share form, sharecropping costs and returns are fairly simple; nevertheless, in practice the arrangements are more complicated. For example, it is expected that all costs of the harvest will be split equally between the partners, even though in a strict sense harvesting activities fall under the domain of the "labor" share, with the "working" partner expected to provide all tools, labor and traction in the care of the fields. The use of insecticides presents the opposite case;

insecticides could be classed as chemical inputs, along with fertilizer, and thus be the sole responsibility of the "non-working" partner. But, the established convention is for both the cost of the insecticide and the cost of its application to be split between the partners. Other variations may be the outcome of individually negotiated contracts, but the four share system with the two modifications mentioned above is the basic form of the sharecropping arrangement (See Table 2). Some complications arise with these modifications when three people are involved; are costs of harvesting and insecticide treatments split up by shares, i.e. one half and two quarters, or are they divided up equally among the three partners? Such issues would mutually agreed upon among the partners, and have no standard solution.

The types of sharecropping arrangements into which a person enters depends on their level of financial development. A young man usually has no land or capital, and as a result has no alternative but to enter as a quarter partner, contributing only his labor. But, in a surprising number of cases, the young man's partner (companero) will "loan" him inputs at concessional rates, allowing him to earn two quarter shares. For example, in several cases the young man was given fertilizer by his partner, who expected to be paid only after the harvest. While such a loan is motivated in large part by good will, it also represents a form of enlightened self-interest by the richer partner. It is not uncommon for a sharecropper to have one or more relatively neglected fields, which degenerate through a negative feedback process; a field which is in some way deficient relative to other fields (e.g. has less fertilizer, suffered from frost or lack of water, etc.) promises less return to the sharecroppers' efforts than the same effort put into a healthier field. By giving the worker a larger share in the field, the partner makes it less likely that his field will be the one to be neglected, and decreases the chance that the field will enter into the negative feedback cycle.

As a man matures financially, he begins to acquire farm capital, such as tools, teams of oxen and land. But, in purchasing farm capital, the farmer frequently must overextend himself to the point that he has no liquid capital for planting. Risk aversion may play a part in this decision, since farm capital is a much less risky investment than production inputs for a single season. Even financially mature farmers may look for partners among the wealthier people in town, especially among those who are labor short, such as elderly people, single women or widows.

The final stage in a man's financial life comes when either through age or property acquisitions, his land and capital holdings come to outstrip his physical abilities. A man in this condition must look for partners, preferably among relatives in the next descending generation, such as sons or sons-in-law. If these are not available, he may decide to rent out the land. This final stage in a man's life is similar to the situation of women without husbands; single women often have their own land, either through inheritance or through their own entrepreneurial success. Since the woman can only engage in agricultural work to a limited degree, she must have a partner to help her. Renting the land is a least desirable option for the land owner.

In Table 3 production costs are summarized to give monetary costs to each partner in different forms of "sharecropping". A rate of return is then constructed as a ratio of the percentage of the total investment a partner has contributed, and the average product he receives (his shares). The forms of sharecropping are arranged to approximate the stages of a man's development; Table 4 shows the rates of return expected at these different stages. Stages I - III show the development to the height of earning power, followed by a decline in old age. Through a farmer's life cycle, he gradually works to control resources, which, combined with his labor, give

him his highest return to investment; once his capital assets exceed his work and management capacity, his rate of return drops. This of course is an over simplification of Poconeno economic options, but it does serve to put different forms of potato planting strategies in some perspective.

A comparison of share costs and their returns is striking. On the one hand, there is a wide variation in the values of the four shares, but in Sharecropping forms I and II the particular combination of factors result in appropriately equitable distributions of costs between the partners and relatively small variations from the expected 25-75 and 50-50 percentage distributions. Sharecropping form III, however, is clearly an inequitable distribution of costs in relation to income, despite the fact that it is a regularly used form of sharecropping; it should be noted that this is the form of sharecropping used by middlemen (rescatistas) who want to ensure their supply of potato for the early market and older wealthier people who have more cash than they have land or labor. The significance of these observations will be made clear below.

6 Shares and Profit Rates

A discussion of profit rate in agriculture implies a certain amount of guesswork. Whereas the percentage of the crop a share will earn is an invariable statistic, the profit rate depends on the relationship between costs of inputs, the price at which the output is sold, and the amount produced in the field. Changes in these values not only change the profit rates of the different factors, but also changes the structure of the profit rates between the factors. Keeping this limitation in mind, it is still

possible to present figures for average profit rates for comparison.

The calculated profit rate is based on an average production of 75 cargas per hectare sold at a price of 400 pesos per carga. The average price of potato sold during the harvest of 1978-1979 was between 450 and 500 pesos per carga due to the effects of an unusual frost in 1978, but price information provided by the farmers for previous years indicated that 400 would be a more typical price (inflation was very low at that time, so no adjustment scale is applied). Since 400 pesos is the price applied to 1st class potato, average sale price of the 75 cargas is reduced by approximately 20% due to the inclusion of lower grade potato (average cost, then is 320/carga). The profit rate is a ratio of the amount invested (Table 3) to the amount of gross income. One quarter share, therefore, earns 6000 pesos gross, and a half share, 12,000.

As in any attempt to quantify peasant income, this analysis suffers from "accounting" errors. This is most obvious in the case of labor. What is the value of a man's own labor to himself: Should he be paid a wage reflecting his entrepreneurial or managerial status? What about labor exchange (ayni)? While it does not solve the basic theoretical problem, the Poconenos tend to view all inputs in terms of the cost of replacing them with a cash payment, were that necessary. This calculation includes family labor, and at times is even extended to inputs such as seed which might have been saved from the previous harvest. Pocona farmers have very practical reasons for making such "opportunity cost" calculations; since an individual works a number of fields, it often happens that more than one needs attention at the same time; or, a farmer may have obligations which call him away from agricultural tasks, such as community service, contract making or negotiation, etc. In these cases, he has to decide whether he should hire a laborer to do the work in the field, or skip the other obligation and do the

work himself, or wait. The farmer frequently finds himself in a position of deciding whether to hire a worker and do some other chore himself, or putting off that chore to save the cost of the "worker, so the farmer's "daily "worth" is clearly tied to the daily wage.

A more serious accounting problem arises in the interpretation of the profit rate. The profit rate of 2.64 for a partner contributing land and labor is an astounding figure. With such a high profit rate, the problem becomes explaining why peasants are not all wealthy, especially those who own land. One explanation is suggested by Chayanov (1966); on a peasant farm there is an invisible "overhead" cost for maintaining the family farm. This explanation is important, and deserves more detailed consideration.

In a normal capitalist enterprise, production costs can easily be divided into categories such as wages and overhead. All categories of costs must be calculated so they can be paid. "Profits" are easily identifiable by adding up costs and subtracting these from income; profit rates can be maximized by adjusting the scale of operations and the number of workers employed. On a peasant farm, there is no strict calculation of all inputs (such as occasional chores, managerial or otherwise), and especially no calculation of overhead, which should include costs of physical capital (land, tools, and buildings). Even when the overhead costs are known, the multiple uses of all items confuses the calculation; should a farm house be considered overhead or consumption? Should raising children be considered labor recruitment and training or philanthropy? Finally, in a more concrete sense, there are continual maintenance tasks and "costs" associated with farm production; rocks and roots must be cleared, field borders maintained, and canals built. A major consideration should be the cost of the total potato rotation. In an ideal world, Poconenos would prefer to have most of their land in potato production all of the time. Due to problems of disease and

soil exhaustion, other crops must be included in the rotation, even though these crops give a much lower income per hectare. In a sense, the other crops can be looked upon as maintenance activities for potato land which happen to have marketable by-products. Thus, the high profit rate the peasant receives from potato production represents a return on a very limited production sphere, and does not take into account the costs of crop rotation, cleaning irrigation ditches, etc, which are not directly associated with the production of potato.

In view of the accounting problems involved in its construction, a "profit rate" in peasant agriculture may be suspect. But, in specific contexts, e.g. the comparison of similarly constructed profit rates, an analysis of this type can serve to illuminate the peasant production process and explain patterns of decision making. If a farmer has "x" amount of capital and land which are available for crop production (the situation every farmer faces at planting time), the economic advantages of different production strategies is accurately reflected in the "profit rate" used here.

7 Middleman profits

The simplification of profit rates for middlemen presents more difficult problems than those encountered in doing the same for the peasant sharecropper. A brief discussion here will indicate what these problems are, and should demonstrate that middlemen's profits are actually higher than presented in the previous tables.

One source of profits for the middlemen is the markup on the price of

potato sold in the city. This markup is fairly standard, due to the difference in the size of "cargas" bought in the countryside and those sold in the city. In Pocona, a "carga weighs 250 lbs.; in Cochabamba, a carga weighs 216 lbs. general, the price of the respective carga for the city and the country is the same, so the 25% weight difference in the measure represents the middleman's profit. (Obviously, there are variations between the prices in the country and city at times, but comparisons of city prices from the records of the Cochabamba cooperative installations of ARADO (a functional entity of DESEC) and those observed in the countryside showed them to be quite similar.)

On a per truckload basis middlemen can earn between 125% and 315% as a profit rate, depending on how they acquire the potato. Table 6 compares the profits for middlemen who purchase all their potato for resale in the city, with those who acquire all potato through sharecropping (and purchase none), and with those who acquire one half of their potato through sharecropping, and purchase the other half from their "companero" (this is the expected norm).

These figures are only indicative of a general tendency, since no effort has been made to calculate middleman transport costs. Furthermore, middle man costs are likely to be affected by the production of their own seed in sharecropping arrangements. These factors are mentioned to clarify that there are clear economic incentives for middlemen to engage in sharecropping, despite their relatively low return from the actual sharecrop product.

8 Sharecropping and the Peasant Financial Strategy

Peasant financial strategy is based on a major premise; liquid capital is scarce. As a result, peasants will go to great lengths to avoid expenditure of liquid capital, a disposition which has gained a reputation for tight-fistedness among city people. The peasants' favored form of sharecropping, where the peasant contributes land and labor and the capitalist contributes seed and fertilizer is a perfect example of the strategy; as owner of the field he pays no cash rent; with the capitalist paying half the harvest cost, and the possibility that the peasant himself can do a great deal of the work on the field himself, the peasant cash outlay for his half share of one hectare of potato would be 2000 pesos. Were he to pay cash for all inputs, his cash outlay would be nearly 7500 pesos for the same field.

Producing potato in sharecropping has another purely financial advantage, which is illustrated by comparing profit rates of the farmer with the capitalist, the former being 2.64 and the latter, 1.26 (Table 3). The farmer realizes more profit and a higher return on his investment than the capitalist. Since the farmer's costs are relatively low, his break even point is even lower; whereas breakeven for producing potato without sharecropping is felt to be 300 pesos per carga, the lower investment under sharecropping arrangements allows the farmer to confront an even worse market and production situation and still have little incursion into his supply of production capital.

Finally, it would be difficult to overestimate the risk aversion value of sharecropping. Unless a field is lost through blatant negligence, the

farmer has no financial obligation in the event of crop failure. In view of the well documented preference of peasant farmers for security over risky high profits (Cancian' 1972) it is logical that they would sacrifice exceptionally high profits in years of high potato production in exchange for guarantees against failure. It might also be noted that if sharecropping is considered a loan in kind, its cost is very close to the common local rate of 5% if the capitalist's profits of 26% on investment (Table 3) are spread over the 5 month production period for potato.

Nevertheless, farmers sometimes complain about sharecropping, saying that it is unfair that they should do all the work only to have the capitalist take half the crop. This concern with the actual work involved in the production may reflect an intuitive understanding of the effect of the sharecropping on the return to labor. As Table 5 shows, the return to labor is 10% higher when working individually, as compared to sharecropping.

Apart from the lowered return to labor, the sharecropping hurts peasant income in another way. There is clearly a limit on the amount of land a farmer can effectively work and manage in a single season; this upper limit is between 2 and 3 hectares. This means that by entering into a sharecropping agreement, the farmer has halved his potential income from potato.

Sharecropping arrangements are clearly a product of the Cochabamba economic environment. They reflect a scarcity of capital in the countryside, and the high cost of potato production. They provide a way for poor peasant to enter into entrepreneurial production despite their lack of capital, but once the farmer reaches a higher level of prosperity, sharecropping becomes a drag on his income. Maligned though it may be, farmers go on sharecropping even when they have the potential for raising their own production capital, which probably reflects the financing and risk aversion qualities of

sharecropping for the peasant producer. In fact, Poconá sharecropping arrangements are very favorable to poor farmers, and less so to wealthy farmers or urban based capitalists. It is tempting to link the economic power of peasants to the effects of the revolution of 1952 (Malloy and Thorn 1971), although it is beyond the scope of this paper to enter in those details. In any case, it appears that peasant farmers are in a reasonably strong bargaining position vis a vis production capitalists.

9 Conclusion and Recommendations

The desire to generalize results and analyses on an international level has lead in some cases to an unrealistic stereotyping of economic roles and functions of actors in the production process. Finkler (1980) and Raymond (1968) (to name just two examples) have pointed out that the relations of peasant production are highly dynamic, and may defy their classification within the categories of capitalist or marxist economics (see also Dalton 1974).

In Cochabamba, Bolivia, sharecropping middlemen are known to extract a large portion of a farmer's crop in return for the financing of the potato production. While at face value the "cost" of their participation seems high, a consideration of alternative forms of financing indicates that sharecropping is not unreasonably expensive in view of the local cost of capital. Furthermore, the farmer's returns to sharecropping are quite favorable, and at the same time he avoids economic obligations in the event of crop failures or bad prices. Nevertheless, the negative stereotype of marketing middlemen has lead to attempts to ignore or eliminate them from the

production process, rather than try to improve their participation.

It is recommended that sharecropping middlemen be seriously considered in plans for the improvement of potato production for a number of reasons. These individuals figure importantly in agricultural financing in their sharecropping activities. They are also in a position to control seed quality either through their purchases from known fields or through cultivation in sharecropping arrangements. Furthermore, in many cases the middlemen are a major source of technical information for agricultural decision making by their partners. The seed production activities of the middlemen should be investigated to determine if economically feasible improvements could be made in their production techniques. Some consideration should also be given to providing technical information to these individuals in view of their role as de facto extensionists.

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11 Tables

Table 1

Seed Cost as a Percentage of Total
Cost of Production

Crop	Total Cost*	Seed Cost	%
Potato	12,590	5,400	42.89
Haba	4,210	720	17.10
Corn	3,340	200	5.99
Wheat	2,240	600	26.78
Barley	1,850	375	20.27

* This total cost excludes the cost of land.

Table 2

Costs of Input Shares for Potato Production.
(from Jones 1980)

Input	Cost (in pesos/ha.)	% of Total Cost
Chemicals	2835.00	20
Seed	5400.00	38
Land	1500.00	11
Labor*	3052.50	22
Capitalist's Labor Cost**	1302.50	9
Totals	14090.00	100

* cost of work share less one half the fumigation and harvest costs.

** cost of one half fumigation and harvest.

Table 3

Costs and income for potato production under different forms of sharecropping, in pesos, and as a percentage of total cost.

Kind of Sharecropping	Cost in Pesos (1)	Cost as % of Total	Share Income (2)	Profit Rate (2/1)
I.				
Labor	3052.50	21.33	6,000	1.97
Land, Seed and Fertilizer	11037.50	78.34	18,000	1.63
II.				
Labor and fertilizer	5887.50	41.78	12,000	2.04
Land and Seed	8202.50	58.22	12,000	1.46
III.				
Land and Labor	4552.50	32.31	12,000	2.64
Fertilizer and Seed	9537.50	67.69	12,000	1.26

Table 4

Percent Return to Investment Under Different forms of Sharecropping

Sharecrop Arrangement	% Return	Input Share
I.	115.42	Labor Only
II.	119.67	Labor and Fertilizer
III.	154.75	Land and Labor
IV.	85.88	Land
V.	73.87	Capital

Table 5

Returns to Labor for Farmer,
with sharecropping and without.

	Labor cost to farmer*	Farmer Income	Return to Labor
Individual	3,815	11,410	2.99
Sharecropping	2,752.5	7,447.5	2.71

* Labor costs differ slightly from previous figures because the cost of insecticide was left out for this calculation.

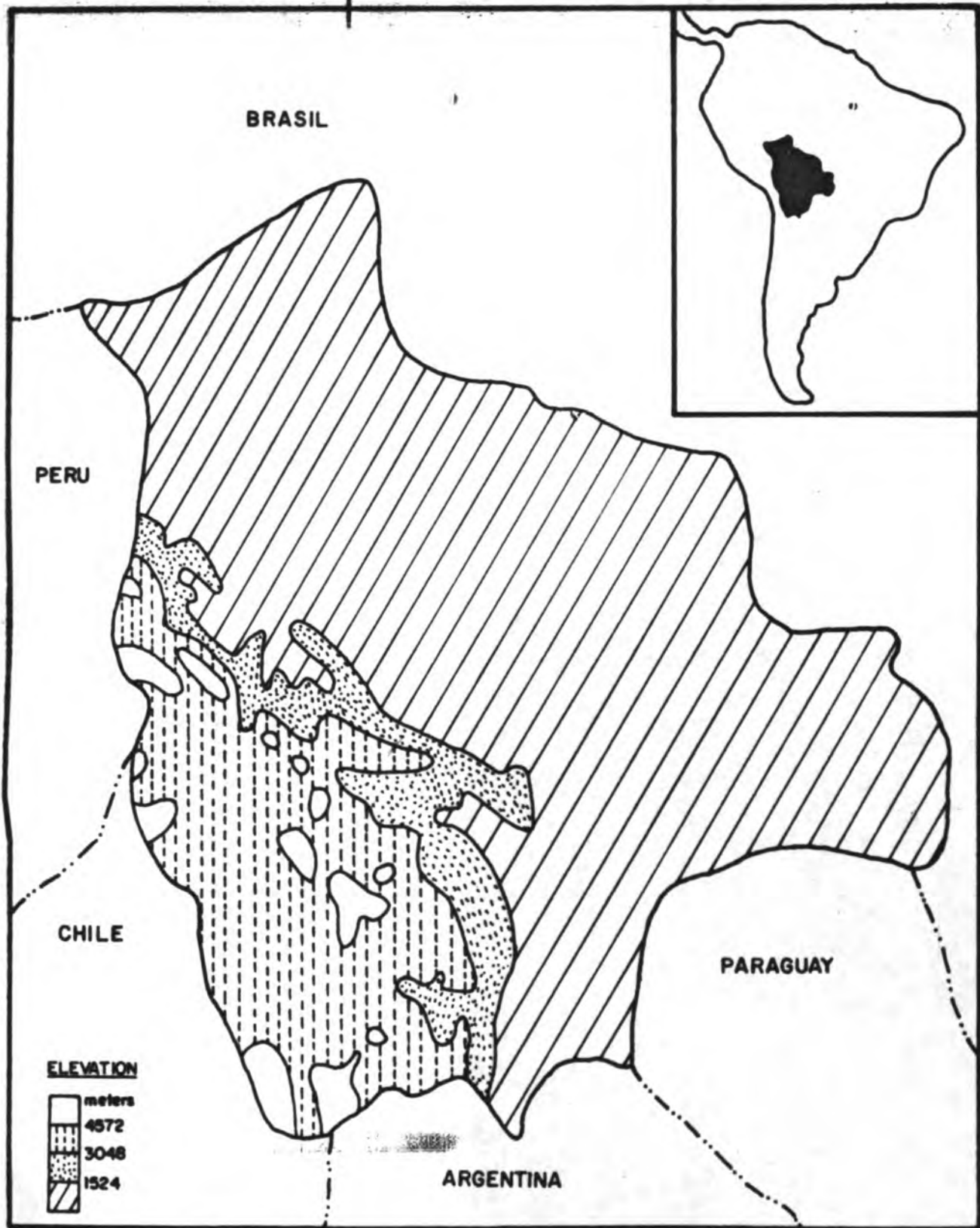
Table 6

Middleman Profits from Transport and
Sharecropping Activities

	Acquisition Costs*	Gross Income**	Profit Rate
Purchase	12,800	16,000	1.25
Sharecrop	5,087	16,000	3.15
Mixed	10,544	16,000	1.52

* Based on purchase of one truckload (40 cargas) of potato at 400 per carga of 250 lbs., less 20% for effects of lower quality potato.

** Based on sale of same truckload of potato sold in cargas of 216 lbs., less 20%.



BOLIVIA - LOCATION & MAJOR ALTITUDE ZONES