



FEED ^{THE} FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



Can Cash Transfers Promote Sustainable Seed Markets?

Participatory Action Research on the CRS-Guatemala RAICES
DiNER Fairs



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Feed the Future Consortium Partners in the Feed the Future Global Supporting Seed Systems for Development activity:



ACRONYMS

BHA	Bureau for Humanitarian Assistance
CRS	Catholic Relief Services
DiNER	Diversity for Nutrition and Enhanced Resilience
NGO	Non-governmental Organization
PAR	Participatory Action Research
PDM	Post Distribution Monitoring
RAICES	Restorative Agriculture in Communities for Economic Sustainability
S34D	Supporting Seed Systems for Development
USAID	United States Agency for International Development
WSA	Water Smart Agriculture

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INTRODUCTION

Catholic Relief Services (CRS) Guatemala and the Feed the Future Global Supporting Seed Systems for Development (S34D) activity¹ conducted a joint Participatory Action Research (PAR) study on CRS Guatemala's Restorative Agriculture in Communities for Economic Sustainability (RAICES) project 2022 DiNER (Diversity in Nutrition for Enhanced Resilience) fairs. As part of a two-country study, the PAR sought to compile best practices in cash-based agricultural input fairs, share recommendations for improving seed relief activities, and suggest ways to develop seed markets through the use of cash. The study also aimed at addressing ways in which cash-based fairs may need to be adjusted so that women, men, youth, and persons with disabilities can equitably participate and benefit from the intervention.

PAR can be described as 'learning by doing', generally involving an action or intervention approach that is tested, researched and then refined for future application. Unlike most research endeavors that present findings ex post, the process is dynamic and continuous, enabling feedback in real time.

The Guatemala program identified the following key questions to be addressed by the PAR. These include:

1. Which extension/promotion methods are most effective among men and among women and youth in terms of adopting and purchasing improved seed?
2. In what ways can cash transfers help to promote/support sustainable seed markets?
3. How are decisions made on the use of the cash transfers, the products purchased, and the use of the crops grown?

¹ S34D is a USAID funded consortium led by CRS. S34D was created to enhance farmers' access to a full range of seed choices and options to maximize their responsive decision making and planning for production. The activity builds on existing partnerships and seeks to provide new insights and business models to extend the reach of quality seed to last mile users including women, youth, and vulnerable groups. S34D seeks to improve the functioning of formal, informal, and emergency seed sectors in targeted countries.

BACKGROUND

Past experiences with DiNER fairs and cash transfers in Guatemala

DiNER fairs have been implemented by CRS in Guatemala as part of a series of food security and child nutrition projects over many years (Superamos I, II, Adelante, and, currently, RAICES). The Superamos DiNER fairs provided beneficiaries with electronic vouchers to purchase goods at the fairs. After a multi-agency study² in 2018 recommended that cash should be used for both food transfers and DiNER fairs, the cash modality was incorporated into the subsequent Adelante project. A study³ undertaken to compare the voucher and fair modalities found that cash fairs were preferred to voucher fairs both in terms of ease of management and beneficiary satisfaction.

The RAICES project

The RAICES project was a 27-month BHA-funded project (Aug 1, 2020-Oct 31, 2022) that aimed to reduce hydrometeorological risks in the Dry Corridor of Guatemala through building diversified and resilient agricultural livelihoods among farming households in 66 communities of five municipalities in Baja Verapaz and Chiquimula. The project prioritized the following intermediate results:

- Rural communities develop capacities to manage and coordinate hydrometeorological risks.
- Farmers increase production and productivity through practices that restore soil and water resources.
- Farmers diversify their crop and livestock production systems.
- Farmers have access to community-based veterinary services to safeguard their livestock assets.
- Rural families increase financial management competencies through the establishment of savings and internal lending communities and financial education.

As part of objectives of increasing production and productivity and diversifying crop and livestock production systems, the project conducted a series of DiNER fairs. The fairs provided farmers a choice of seeds, tools, fertilizer, poultry, feed, and veterinary products. The mix of inputs available was based on community assessments and tailored to the various livelihood strategies of participants. For example, field tools were on offer in locations where day labor has been identified as a principal livelihood activity. The project used a cash modality for the fairs rather than traditional vouchers.

In addition to providing immediate relief for families enduring chronic stress from recurring extreme weather events and degraded natural resource base, the fairs were also intended to strengthen seed systems by promoting sustainable supply options through the involvement of vendors at various levels of the supply chain (local, departmental, national) and encouraging farmer experimentation with new seed varieties. Because of concern over potential non-compliance with donor regulations, only certified seed was offered at the fairs. Although local vendors were prioritized, because of variable quality and limited quantities of “criolla” seed, larger, regional vendors supplying certified seed made up the bulk of vendors in the fairs.

Complementary activities conducted to promote good agricultural practices included training local promoters with modules on planting, soil management, and conservation agriculture techniques (minimal till, crop rotation, introduction of leguminous cover crops). Demonstration plots for water smart agriculture⁴ (WSA)

² McClain, K. *Market-based Food Assistance in Guatemala: A systematization of experiences*. CRS, PCI. May 2018.

³ Walters, E. *A Comparison of Voucher and Cash Transfer Modalities for Diversification in Nutrition and Enhanced Resilience (DiNER) Fairs in Guatemala*. CRS, July 2020.

⁴ WSA is an ensemble of practices to restore soil health and fertility including fertilizer management, cover crops, mulch, and agroforestry.

practices were also installed. These plots did include improved seed, although the primary purpose was the promotion of WSA.

The project targeted the most vulnerable farmers. Targeted participants only had small plots that were unable to produce sufficient harvest to last the full year. Most participants rely on day labor to supplement their harvests.

METHODOLOGY

Participatory action research

PAR is a collaborative research approach that emphasizes the active participation of stakeholders in the research process. This methodology involves engaging community members or other stakeholders as co-researchers in identifying research questions, collecting and analyzing data, and developing and implementing solutions to address identified problems. In this case, project staff were the co-researchers. The goal of PAR is to empower participants to take action to improve outcomes.⁵

Data collection and analysis

Primary data was collected from both farmer and vendor participants using four instruments - exit interviews at the DiNER fairs, a post-distribution monitoring (PDM) survey, a survey of women participants, and a vendor survey.

Three vendors participated in the vendor survey. All three vendors sold maize seed and fertilizers, while two also sold tools, and one of them sold animal feed. The survey concentrated on sales during the fairs, prospects for future sales to the new clients, strategies for reaching them, and questions regarding any modifications to the sales approach based on client gender.

Individual interviews targeting women were conducted with 12 participants. Initially designed as a focus group discussion, it was determined that the close-ended questions were more appropriate for individual interviews. The interview, conducted five months after the fairs, focused on the distribution and use of cash, any harassment experienced during or after the fairs, vendor relations, and decisions over use of cash and the purchased products.

688 participants (618 women, and 70 men) responded to the PDM questionnaire conducted a month after the fairs. In addition to questions about the other products, the PDM survey asked about preferred maize varieties, seed purchased at the fair, germination of the seed, previous use of improved varieties, information source on improved varieties, perceptions of improved varieties, and if and why they would purchase from the same vendor again.

The household interview was collected using the CommCare application on tablets. Data was transferred to Excel. Results were tabulated and tables generated using Excel.

The focus group conversations and key informant interviews were recorded on paper and then transferred to an Excel spreadsheet. There, revealing responses were highlighted and common responses were tabulated. Common focus group responses included mainly sourcing seed from their own stock and that harvests were consumed rather than sold. One revealing response from a women's focus group was that they would continue patronizing the agrodealer not only because of the quality inputs but also the attention paid to them during the fair. RAICES reached 4,868 families with DiNER fair events in Chiquimula and Baja Verapaz in April and May 2022. Sixty-four fairs were held with an average of 100 participants per fair. Immediately prior



Figure 1. Farmer with seed from Baja Verapaz fair

⁵ Reason, P., & Bradbury, H. (Eds.). *The Sage Handbook of Action Research: Participative Inquiry and Practice*. Sage Publications, 2008.

to the fairs, a total of \$286,887 USD was transferred to participating families (\$58.93/household) who then had the option to use their transfer to purchase livelihood supplies such as tools, fertilizer, seed, poultry and feed, and poultry production equipment, such as feeders and drinkers. The inputs offered at the fair were selected based on a community preferences survey. Despite the farmer-expressed preference for local (criolla) seed, concerns over variable quality of available criolla seed led the project to only offer certified seed at the fairs. Certified seed varieties made available in the fair were open-pollinated *ICTA B7* and *ICTA B15*.

Females (in both female-headed households and couples) were prioritized to receive the transfers. After receiving the cash distribution at the bank, for security reasons, participants were bused to the fair site. Booths were set up at the entrance to the fairs to sensitize farmers on best agricultural practices prior to entering the fair.

RESULTS

Which extension/promotion methods are most effective among men and among women and youth in terms of adopting and purchasing improved seed?

The vast majority of participants did not buy seed during the fair. Only 20% (138) of fair participants purchased available maize seed. PDM results explain that 68% of participants prefer criolla (indigenous) seed, while only 32% prefer improved seed. Experience among fair participants with improved seed was low as only 247 (35%) of the 688 had used improved seed in the past.

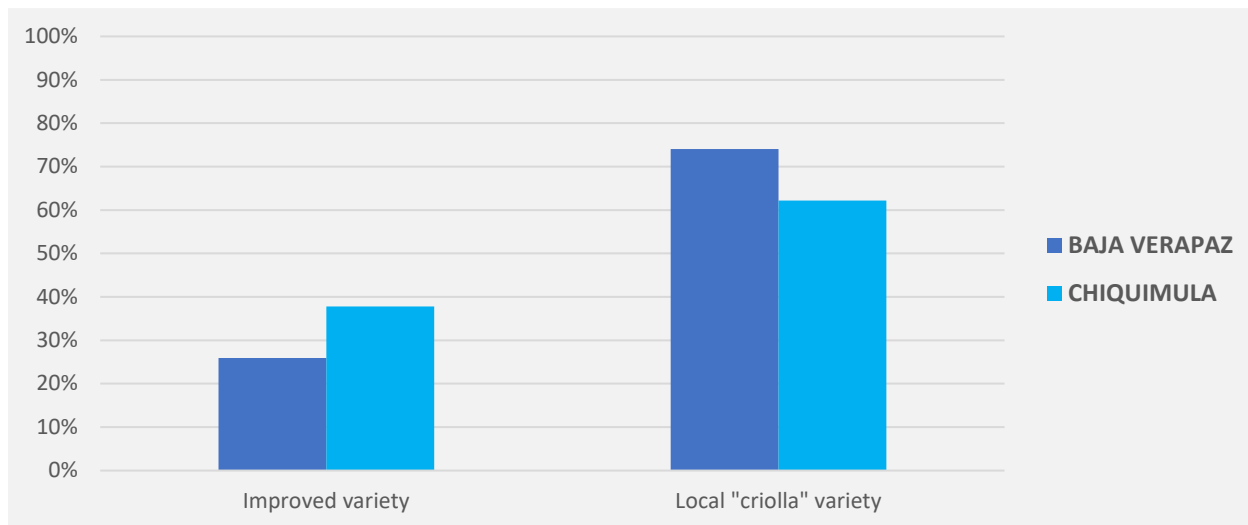


Figure 2. DiNER fair participant maize seed preference by department

Of the 45 participants with previous experience with improved seed, all 45 still preferred criolla seed but 29 said they would consider trying improved varieties again in the future. The following are the most frequently cited reasons for why farmers prefer criolla seed:

- More experience with local varieties;
- Better harvest than improved varieties;
- Better adapted to the soil conditions than improved varieties;
- Doesn't require much fertilizer;
- Better adapted to the climate than improved varieties;
- More resistant to pests than improved varieties;
- More common in the community;
- More accessible;
- Can use saved seed; and
- Germinates quickly.

Many of the reasons cited for preferring criolla seed – better harvest, drought, and pest resistance – are the same attributes that improved varieties have. This disconnect in perception provides an opportunity for more sensitization and awareness raising on different maize varieties and their attributes in the future. The table below shows why farmers decided to purchase improved varieties at the fairs.

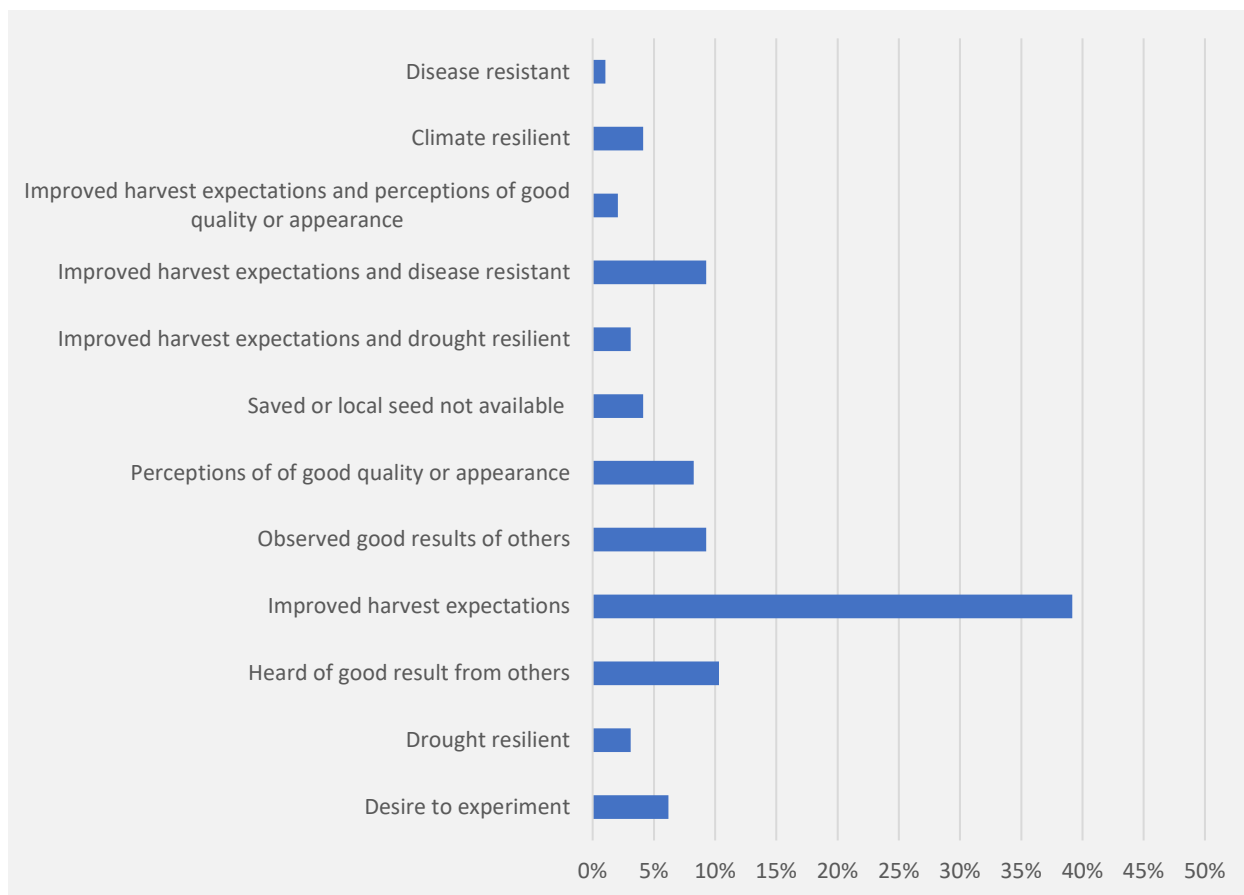


Figure 3. DiNER fair participant motivations to try improved variety maize

Among those who purchased the improved seed, motivations are similar to those who favored criolla seed. Around 39% favor improved seed because of anticipated higher yield. Another 30% cite the related reasons of both observing/hearing the good results (although what kind of results aren't specified), along with improved harvest expectations and disease resistance. Climate and drought resistance were only noted by around 10% of respondents. The latter could indicate that these adopters of improved varieties are less risk averse than those continuing with the criolla seeds, as they weigh the gains of improved yields against the risks of crop loss from drought. It also shows that better messaging around the drought resistant characteristics of these varieties, particularly the *B-7*, is needed among the most vulnerable farmers. *ICTA B-15* is a high protein variety biofortified with zinc. None of the adopters mention improved nutrition among their reasons to adopt.

Interestingly, 56 of the 138 participants who did purchase improved varieties at the DiNER fair expressed an overall preference for criolla varieties, yet they still purchased the seed. Some respondents mentioned that they did not have sufficient resources to purchase other varieties of seed. Local seed availability was also cited as an issue by some respondents. Consequently, in some cases, it appears that access and availability constraints with respect to local (criolla) seed were a factor in the decision to experiment with improved varieties.

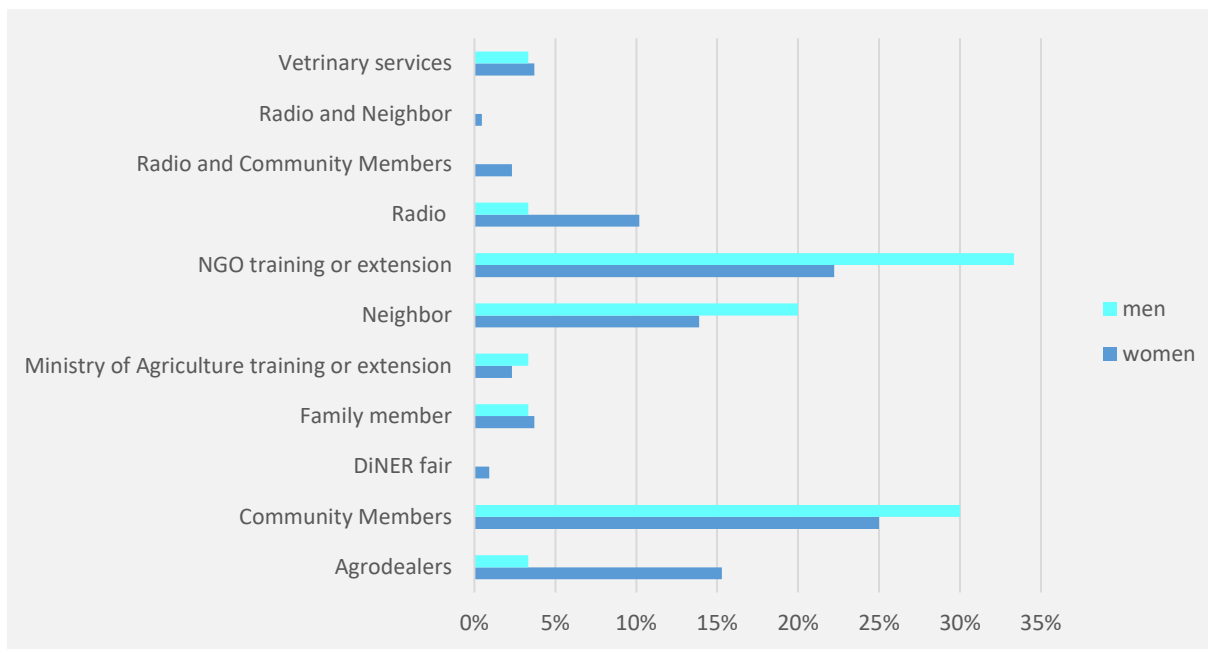


Figure 4. Source of information about improved varieties

PDM findings point to the social nature of decision-making around the application of new technologies or practices, as community members and neighbors were frequently cited as information sources on improved varieties; 45% of respondents receive information on improved varieties from their social networks (family, community, neighbors).

The survey results also show the importance of agricultural extension in the process. Almost 30% of participants who purchased seed at the DiNER fairs indicated that NGO training events and extension activities were an effective means of reaching smallholder households with messages on improved variety seed. A greater percentage of men obtained information on improved varieties from NGO trainings and extension showing the need for more gender sensitive targeting of participants in training and extension programs.

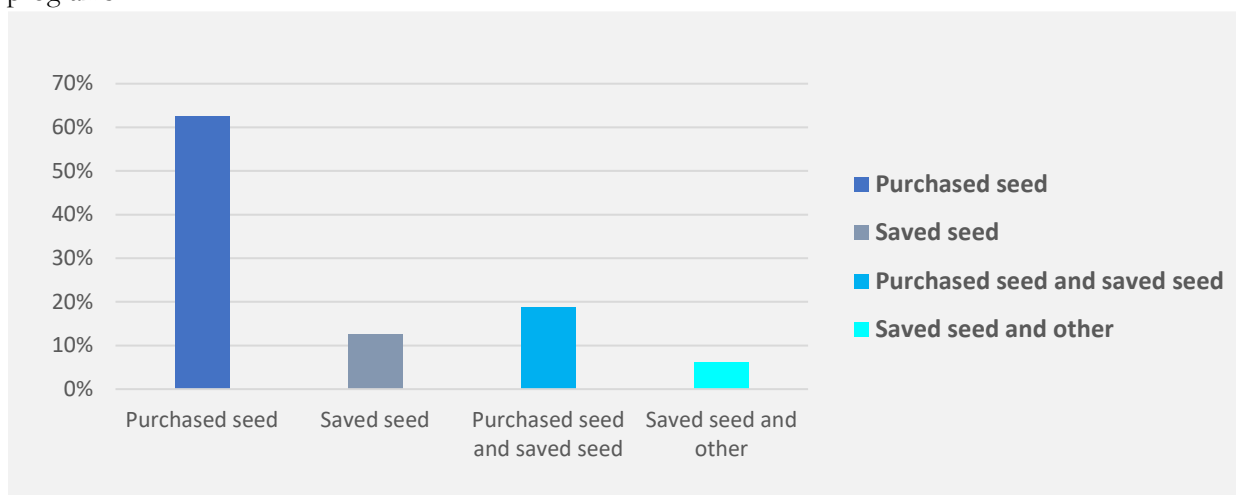


Figure 5. Anticipated source of improved variety maize seed for next planting season

Of those purchasing improved seed, all except one respondent said they would continue to use improved variety seed next season. Most indicated that they would need to purchase the improved variety next season. Some mentioned that they intended to plant saved seed. Most would be willing to purchase again from input suppliers they had encountered at the fair, citing good quality products, prices, and customer service.

In what ways can cash transfers help to promote/support sustainable seed markets?

The DiNER fairs provided an opportunity for community members to interact with and patronize vendors. This offered the potential of creating longer-term vendor/client relationships.

Of the three vendors interviewed, all sold seed and fertilizer while two sold tools, and one sold animal feed and seedlings. All vendors reported an increase in total sales of seed during the fair period compared to the previous year (both in the fair and in the shop); however, in only one did seed fair sales make up a significant percentage of total sales. Fertilizer sales increased for two out of three vendors.

All three vendors considered that the fairs had a positive impact on their businesses, although one considered the benefits more in terms of humanitarian and social impacts rather than commercial.

Two of the three vendors thought that the fairs had expanded their client base to small, limited resource farmers while one continues to sell only in bulk to larger buyers. All of the vendors considered that the fairs had expanded the type of client they serve. Two vendors considered that the effects of the fairs would be long-term rather than one-off. One reported that some of the seed fair beneficiaries had already come to his shop. One vendor mentioned that he was expanding how he delivered his product to clients but did not specify the means.

Two participants noted that they would continue to patronize the vendors in the future:

“Yes, because I appreciated the attention provided and the quality of the seed was good.”

“Yes, because it was good seed; what I seeded germinated, and I did not need to re-seed.”

Two vendors said the fairs had improved communication with clients; one said that he had more communication with farmers that he had met during the fairs. Another vendor said that communication remained a challenge and a translator had been required in Baja Verapaz because participants did not speak Spanish, only indigenous languages.

Two vendors said the fairs had influenced how they pack their seed, with one now making smaller seed packets for small farmers.

Regarding gender, two vendors considered that they had learned more about different clients. One said,

Yes, the participants know their needs and therefore as a supplier it is important to be clear about everything related to the subject, of course, both men and women, but lately women have become more involved in agriculture.

One vendor reported that, in an effort to understand women clients, each community has different customs, and it is important to know how to listen and understand their needs. Once these are known, he is able to customize his products/varieties to their preferences.

None of the women interviewed reported inappropriate behavior toward them at the fair, although one reported that she felt a vendor was pressuring her to buy more expensive items and would not let her purchase other tools, like a machete.

565 of 688 (82%) participants said that they would buy again from at least one of the various suppliers of seed, fertilizer, tools, and poultry. Reasons for patronizing the vendors in the future included:

Table 1. Reasons for patronizing vendors in the future

Reasons (N=291)	%
Quality of the product	55%
Price	17%
Service and attention to clients	14%

Quality and price are prime reasons to continue patronizing a business. Interestingly, a significant number of participants appreciated the attentive service from vendors and that was a factor in their decision to continue patronizing them. The results provide the vendors with an indication of the major motivations for participants to continue to buy from them and signals potential messaging in any outreach to small farmers.

At the time of the survey, 64 individuals (9%) had purchased from one of the providers since the DiNER fair.

Use of cash

Participants reported that they had spent over 90% of received money at the fairs.

Table 2. Amount of money spent in the fair

Gender	Average of Amount Spent in DiNER Fair (QUE)	Average unspent amount (QUETZALES)	Min of Amount Spent in DiNER Fair (QUE)	Max of Amount Spent in DiNER Fair (QUE)*
Female	411	51	135	442
Male	404	62	166	442
Total	410.57	52.25	135	442

*The \$US to Guatemala Quetzal exchange rate in May 2022 hovered around 7.5 Quetzales/Dollar

There is no significant difference between men and women in the total money spent at the fairs. Of the 442 Quetzales received by each household, an average of 410 was spent in the fair. The remaining 32 Quetzales was mainly spent on food and medicine.

As far as spending of the cash at the fair, informally, one vendor reported that men purchased fertilizer, seed, and tools while women focused on livestock products. This conforms to the standard roles that men and women play. However, the results from the PDM showed different patterns.

Table 3. Comparison between men's and women's DiNER purchases

Item	Male purchases	Female purchases
Chicks	60%	63%
Poultry feed	70%	86%
Feeders and drinkers	50%	50%
Tools	64%	77%
Maize seed	26%	19%
Vegetable seed	23%	27%
Fertilizer	45%	32%

In terms of chicks, poultry feeders, and vegetable seed, men and women were roughly equal in their purchases. As expected, men bought more fertilizer and maize seed, since generally they are responsible for field crops. Women bought more poultry feed and vegetable seed. This is also expected since women are generally responsible for small livestock and vegetable gardens. However, men purchased chicks at almost the

same rate as women. As far as tools is concerned, it was expected that men would purchase more tools, since an important part of their livelihood is selling their labor to other farms. Surprisingly, women purchased more tools than men. Men purchased more improved maize seed than women.

Two of the vendors had participated in voucher fairs and preferred those because they were more orderly, and because participants had to spend all their vouchers in the fair; the vendors were able to plan their sales better and have less risk of unsold stock at the end of the fair. The one drawback cited with the cash fairs was the risk of traveling with large amounts of cash.

Vendors had several proposals to improve the fairs:

- Inform participants of prices and products prior to the fairs.
- Inform suppliers about participant demand and context (climate, culture, and preferences) so that they can bring the appropriate products and quantities.
- Provide a space where suppliers can present information on the products they are selling before participants enter the fair.

Overall, vendors would prefer to know more about their clients so that they can plan accordingly and have the opportunity to publicize and promote their products prior to the fairs.

How are decisions made on the use of the cash transfers, the products purchased, and the use of the crops grown?

Traditionally, in Guatemalan couples, decisions are made by men. There is a division of tasks within the household where the male is responsible for the “milpa” (the maize staple crop) and often migrates to other regions to participate in the coffee harvest. For smallholder farmers targeted by RAICES especially, harvests are inadequate to carry them through the year, so the sale of labor is needed to fill that gap. Women are responsible for childcare, cooking, vegetable gardening, and small livestock rearing. During the husband’s absence, the wife is responsible for the entire farm.

Results from the DiNER fairs show women’s roles in decision making was higher than the traditional paradigm.

Table 4. How was the decision reached on how to spend the transfer?

Decision method	Did not purchase seed	Purchased seed
Joint decision	49%	53%
Men led the decision	6%	9%
Women led the decision	45%	38%
Total	100%	100%

The table displayed above shows that half of the decision on spending of the transfer were made jointly; however, in 45% of cases for those not purchasing seed, women made the decisions. For those purchasing seed, women’s decision making dropped to 38%.

In interviews with female participants, 8 of the 12 respondents made the decision on the use of money transfers themselves. Four decided jointly with their husbands - the men choosing which agricultural inputs to buy and the women determining what small livestock to purchase.

Table 5. Who in the household should ultimately make the decision over the use of inputs?

Preferred input decision-maker	Did not purchase seed	Purchased seed
Both	67%	68%
Men	5%	9%
Women	28%	22%
Total	100%	100%

As far as use of the inputs purchased during the fair was concerned, more of the decisions were made jointly (67% and 68%) than for use of the cash, with 28% and 22% of decisions made by women alone. In both cases of spending and use of the inputs, the decision was rarely made by men alone.

Eight individuals responded to questions on decision-making on the use of products from the fair during the women-only interviews; of these, five made the decision with their husbands while, for two women, the husbands decided; one woman was single.

The results indicate that, in decisions surrounding the use of money transfers and of purchased inputs, women have more agency than one would expect in the traditionally male-dominated society. This may be a function of women being prioritized for money transfers. CRS has also delivered messaging for SILC groups emphasizing that major decisions should be made jointly between female and male heads of households.

Table 6. Percentage of population purchasing improved varieties, disaggregated by gender

	Purchase improved varieties		Do not purchase improved varieties	
	Women	Men	Women	Men
Baja Verapaz	19%	44%	81%	56%
Chiquimula	20%	20%	80%	80%
Total	19%	26%	80%	74%

Men were marginally more inclined to purchase improved varieties than females and significantly more so in Baja Verapaz.

Only two of the twelve women interviewed purchased seed at the fair. Only one was able to find the variety of seed she was looking for. Over half of those interviewed only planted criolla seed or were only looking for criolla seed. One never plants maize. Nine of the 12 respondents normally obtain their seed from their own stock of saved seed. The lack of criolla seed was a shortcoming of the fairs and prevented women from fully benefiting from the fairs.

For decisions regarding the use of crops for consumption, half of the respondents reported that the decision was joint, three women reported making the decision themselves, and for one, it was the husband's decision.

CONCLUSIONS AND RECOMMENDATIONS

- **DiNER fairs can be a useful means to sensitize vendors to the specific needs of smallholder and women farmers.** Vendors expressed that the fairs provided insights towards customizing products and expanding their client base. There is a need to actively design the supply side of the DiNER fairs by providing more information to vendors about the beneficiary population and their needs. This could entail guidance on what products are needed, package size, and a discussion on marketing to this farmer segment.⁶ In order to optimize the opportunities that fairs present to enhance market development, vendors should promote their products prior to the fairs. This would be especially true for improved seed varieties where farmers have little exposure to them. Additionally, these encounters would provide vendors with an opportunity to learn from participants to ensure product alignment with beneficiary expectations and preferences (price, quantity, quality, variety, etc.).
- **Results validate the assumption that DiNER fairs can stimulate linkages between participants and market actors.** Vendors reported increased seed sales during the month of the DiNER fairs as compared to the previous year, even excluding sales in the fairs. Vendors also indicated that they are servicing more smallholder farmers as a result of the fair, and they anticipated that this trend would continue. One vendor reported that, because of the fairs, he now makes smaller, more affordable seed packets available to his small farm customers. Most PDM survey respondents who purchased improved variety seed mentioned that they would consider purchasing seed again from an agricultural input supplier they encountered at the fair.

While fairs can stimulate vendor/client links, to consolidate and expand these relationships, vendors will need more outreach efforts to these small farmers. Potential activities include opening branches in smaller towns, mobile sales points, and selling seed in smaller packets.

DiNER fairs need to be framed (and planned) as an emerging private sector opportunity for continuing businesses that serve remote or vulnerable clientele. The programming could involve the design of explicit process links i.e., from fair events to post-fair ongoing business. Complementary programming could be offered to suppliers such as making their services more gender sensitive and supporting specific business strategies targeting small, resource-poor farmers. Preference should be given to local vendors and growers who can provide a consistent quality product to participate in future fairs.

- **Sufficient awareness on improved seed through target extension messages and demonstrations need to occur before DiNER fairs can be used to increase access to improved seed.** Demand for improved seed was low in the DiNER fairs. Most farmers still prefer the local varieties and even cite the same reasons that the characteristics of the improved varieties are said to have for their preference – improved production, drought, and pest resistance. Surprisingly, the cost of the improved seed is rarely cited. This illustrates the challenge of convincing farmers to adopt improved varieties. **Farmers main source of information on seed varieties is their neighbors and community. NGO extension activities are also effective at raising awareness and stimulating interest in improved variety seeds.** Horizontal communication pathways among project participants and the community at large play an important role in the diffusion of information on new technologies. Working with lead farmers and promoting experimentation with new varieties

⁶ Raboanarielina, C., et. al. *Diversity for Nutrition and Enhanced Resilience (DiNER) Fairs and Voucher Programming: Evaluation and Learning in the Southern Africa Region*

in a public and visible way would likely generate self-sustaining interest in the absence of more intensive extension activities. Given that male farmers are more likely to receive messages from extension programs, **efforts should be made to better target female farmers in extension programs.**

- Better harvest prospects and learning about good results from others are the strongest motivating factors for trying improved variety seed. Demonstration and comparison plots marked with signs indicating the seed variety being tested would likely be an effective means of promoting experimentation. These demonstrations could then be complemented by semi-structured conversations to encourage farmer-to-farmer sharing of experiences with improved variety seed.
- **Farmers would likely benefit from training on measures to protect the quality of saved seed.** Almost all DiNER fair participants who purchased improved seed indicated that they would continue to use improved varieties. Roughly two-thirds of the same group of farmers mentioned that they would need to purchase seed from an agricultural input supplier to continue experimenting with improved varieties. This finding suggests that seed saving could reduce farmers' input costs. Training on seed/plant selection practices in the field as well as pre/post-harvest practices to retain seed quality and genetic purity would allow farmers to preserve healthy seed until the next planting season.
- **Targeting women with the cash transfer appears to have given them greater decision-making authority on use of the funds and items purchased.** There were a far greater number of women making decisions on the use of the cash transfers than men. However, given women's preference for criolla varieties there were shortcomings in the design of the fairs as no criolla varieties were made available. Enhancing availability of quality criolla seed would benefit women farmers.

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