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Afghanistan Agricultural Extension Project II (AAEP II)

Final Report
October 1, 2014 – July 31, 2017



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Cover Photo: DAIL extension worker teaching farmers how to assess wheat yields during conservation agriculture wheat field day in Nangarhar. (Photo by Zargai Mukhliss).

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LIST OF ACRONYMS

AAEP I	Afghanistan Agricultural Extension Project I
AAEP II	Afghanistan Agricultural Extension Project II
AOR	Agreement Officer's Representative
CBCMP	Capacity Building and Change Management Program
CGIAR	Consultative Group on International Agricultural Research
CHAMP	Commercial Horticultural Agricultural Marketing Program
CoP	Chief of Party
CTF	Consortium Technical Faculty
DAIL	Directorate of Agriculture, Irrigation, and Livestock
EC	Executive Committee
FFD	Farmer Field Demonstrations
FFS	Farmer Field Schools
GSE	Generalized Self-Efficacy
GIRoA	Government of the Islamic Republic of Afghanistan
HUFA	Herat University Faculty of Agriculture
ICT	Information Communication Technology
IPM	Integrated Pest Management
IR	Intermediate Result
LGU	Land Grant Universities
MAIL	Ministry of Agriculture, Irrigation, and Livestock
M&E	Monitoring and Evaluation
NHLP	National Horticulture and Livestock Project
NPPs	National Priority Programs
NGO	Non-Governmental Organization
OAG	Office of Agriculture
PICS	Purdue Improved Crop Storage
PMTF	Provincial Model Teaching Farms
RADP	Regional Agriculture Development Program
RMLSP	Rural Microfinance and Livestock Support Program
RSM	Regional Site Manager
SO	Specific Objective
TAMU	Texas A&M University
ToT	Training-of-Trainers
UC Davis	University of California-Davis
UoM	University of Maryland
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USG	United States Government
WFWI	Women for Women International
WP	Afghanistan Agricultural Extension Project II Women's Program
WSU	Washington State University

I. EXECUTIVE SUMMARY

General Summary. AAEP II worked in 17 provinces and 117 districts. AAEP II has trained participants from 192 districts across 27 provinces because AAEP II training programs have attracted extension workers from provinces and districts where AAEP II does not currently have a physical presence. AAEP II also established Farmer Field Schools¹ in 111 districts (15 provinces), held Training-of-Trainer workshops in 116 districts (17 provinces) and Farmer Field Demonstrations in 98 districts (14 provinces).

Over the life of the program, these activities demonstrated success in achieving program outcomes of: reducing storage losses in grain, animal products, and horticultural produce; improving crop yields; and increasing the availability and utilization of grains, fruits, vegetables, and animal products. Grain losses were reduced by an average of 20% through the use of Purdue Improved Crop Storage (PICS) bags. Several organizations bought and distributed PICS bags, resulting in 76,710 kg of grain being saved through reduced losses. A total of 60,194 kg of wheat were produced due to improved growing practices than would have been under traditional practices. 1,051 people attended trainings specifically on health and human nutrition, coupling knowledge for use of produce with the produce from kitchen gardens. The program demonstrated success in achieving impacts of improved income generation and nutritional status of farm households: income increases were reported ranging from increases of over \$1,000 to \$30 depending on the crop; women who had kitchen gardens are more likely to eat a diverse diet than women who do not have kitchen gardens (32% eating a full 12 categories of food compared to only 7%, respectively).

Challenges and Successes. Among others, major challenges over the past three years included the deterioration of security in the areas in which AAEP II works, a need for a budget re-alignment, the expansion into new provinces and districts to serve new beneficiaries, the transfer of inventory to the DAILs, convincing the DAILs to continue the AAEP II extension model and getting registered as a development entity in country. Major successes included meeting project targets in terms of expansion, generating demand for new and expanded training programs, integration of livestock and Women's Programs (WP) into all aspects of the project activity.

Workgroups. 54 workgroups were formed since October 2014 with a total of 729 members of whom 583 were men and 146 were women. These workgroups were started in 12 provinces. They included focus crops or topics for Horticulture (20), Livestock (12), Cereals (11), Women in Agriculture (8) and Industrial and Spice Crops (3).

Training-of-Trainers. AAEP II offered 1,307 Training-of-Trainer (ToT) workshops reaching a total of 8,568 people. The ToTs covered 8 different topics, with the top three being horticultural crop production, other topics (e.g., mushroom production), livestock husbandry and postharvest. The workshops were led by 108 DAIL employees and 44 AAEP II staff. Government workers led more workshops than AAEP II staff over the last 3 quarters of the program. Of the 1,307 trainings, 597 were led for women.

¹ Farmer Field Schools are a form of adult education, which evolved from the concept that farmers learn optimally from field observation and experimentation.

FFS Trainings. AAEP II established 837 Farmer Field Schools (FFSs) that offered 4,660 different trainings for 21,207 people. Of these 4,660 trainings, 2,674 trainings were led exclusively by women trainers. Of the 21,207 people participating in FFSs, 15,737 were men and 5,470 were women. Average number of FFS trainings led by each DAIL extension worker increased from 3.65 trainings to 4.27 trainings over the course of the project. Overall, people who led trainings at FFS led an average of 4 trainings in year one and an average of 5 trainings in year two.

FFDs Established. Since the beginning of the project, FFS members working with AAEP II established 2,789 Farm Field Demonstrations² (FFDs). Of these FFDs, 1,389 were managed by men and 1,400 were managed by women. The most in-demand topics for the FFD program were: horticultural crop production (1,706) and livestock husbandry (1,376).

Mini-Funds: AAEP II funded 43 Mini-Fund projects, with the Northern Region implementing the largest number at 13 projects. The Mini-Fund program is a small grant program (maximum of \$5,000) which involves development of sites or facilities to train trainers and meet basic infrastructure needs to improve agricultural and/or livestock systems. Mini-Funds can also assist workgroups in addressing priority issues through focused extension messages delivered through multimedia. The total funding for the projects was \$188,208. A total of 10 Mini-Fund programs were completed this past year with the largest number (5) being closed in the Northern Region. Total funding for the closed programs in year three was \$37,089.

² Farmer Field Demonstrations are set up by lead farmers as part of the Farmer Field Schools. They are used to demonstrate new or improved farming practices to other FFS members.

II. INTRODUCTION TO AAEP II

AAEP II has one overarching goal: building the capacity of the Ministry of Agriculture, Irrigation and Livestock (MAIL) and its Directorates (DAILs) to deliver effective extension services to rural clientele in targeted regions. This goal is supported by one specific objective: to build the capacity of extension workers to transfer useful information and technology to farmers. This objective is supported by three **Intermediate Results (IR)**:

IR 1.1: *Knowledge and skills in agricultural production, food security, and extension techniques increased;*

IR 1.2: *Application of agricultural knowledge and skills in the field increased;*

IR 1.3: *Collaboration between extension workers, DAIL and CGIAR researchers, provincial university faculty, and private sector increased.*

These IRs are accomplished through the AAEP II extension model (Figure 1). It starts with the formation of workgroups. The workgroups identify farmer needs, set training/research priorities and evaluate progress; the Provincial Model Teaching Farms (PMTFs) conduct research for relevant solutions to farmer problems and demonstrate successful practices; the Training-of-Trainers (ToTs) workshops increase the technical skills of extension workers and develop key messages for farmers; Farmer Field Schools (FFSs) deliver these key messages to farmers in a participatory manner; the Farmer Field Demonstrations (FFDs) give feedback on the outcomes of farmer adoption; and the Mini-Funds incentivize workgroups to take control of their extension program. Though presented as distinct parts, these activities interact with each other to present an overall extension model that can be adapted within MAIL

These activities are accomplished through close partnerships with MAIL/DAIL, researchers, provincial university faculty, farmers and private sector suppliers. The program has one cross-cutting theme: Gender Equality and Female Empowerment. AAEP II is working with women employed at MAIL/DAIL and women community leaders to establish FFSs and encourage other women to adopt production practices and grow crops that improve household nutrition and increase income.

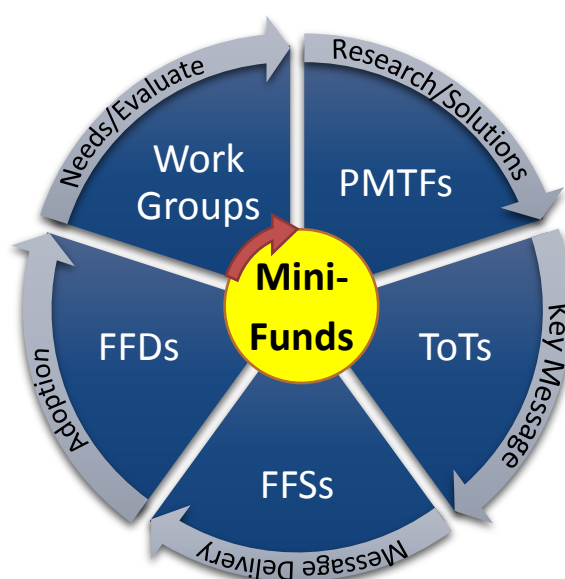


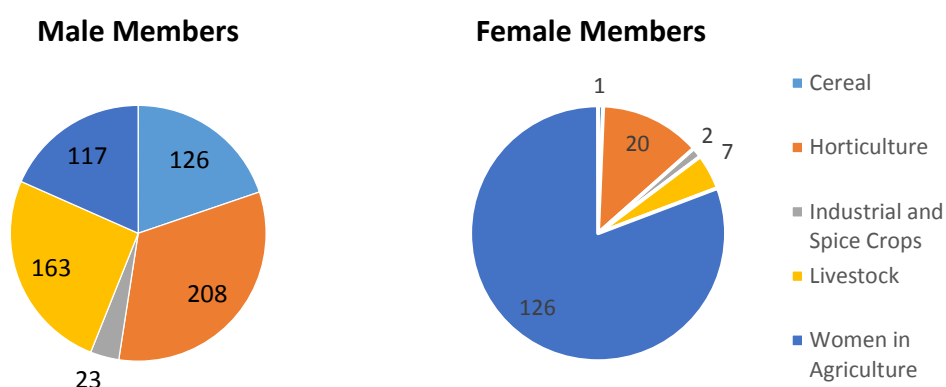
Figure 1. Illustration of AAEP II extension model.

III. OUTPUTS, OUTCOMES AND IMPACTS

A. Workgroups and Mini-Funds

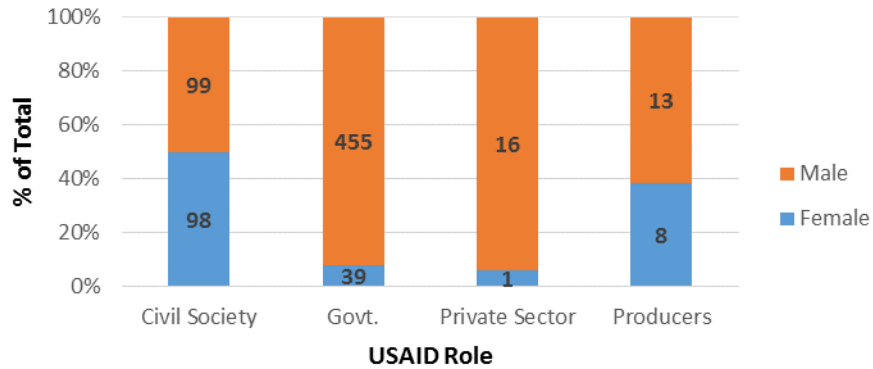
Workgroups were an important part of the AAEP II extension model as they allowed members to interact with each other and conduct needs assessments, set training and research priorities, develop guidance on issues facing farmers, evaluate progress and discuss feedback from other model components, such as FFDs. AAEP II helped DAIL form 54 workgroups [8 of them being part of the AAEP II Women’s Program (WP)] in 12 different provinces with a total of 729 members. Workgroups were organized by thematic topics, such as Cereals, Industrial and Spice Crops, Vegetables, Orchard Crops, Fruits and Livestock. Special workgroups were also formed to specifically address topics affecting Afghan women farmers. Figure 2 separates the workgroup members by thematic topic and sex. For simplicity, the Vegetables, Fruits, and Orchard Crops workgroups were combined under a general “Horticulture” category.

Figure 2. Workgroup members separated by thematic topics and sex.



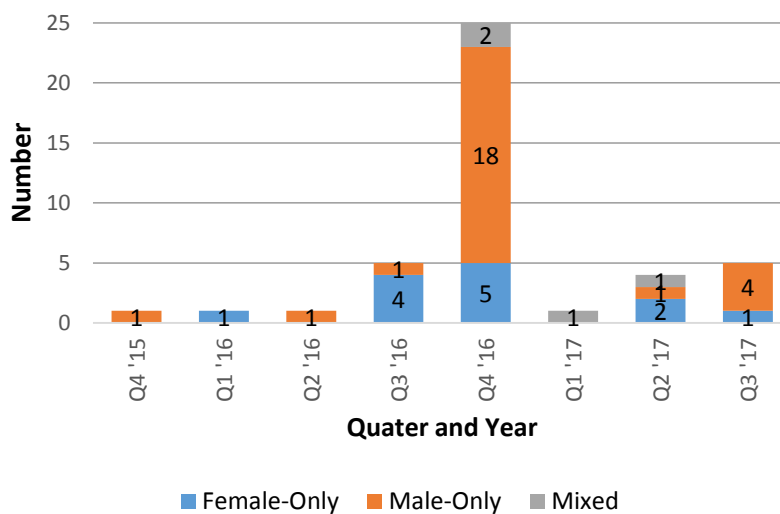
Workgroups were designed to bring together a diverse group of people who represent different aspects of a particular agricultural sector. This gave a rare opportunity for community leaders, producers (i.e., farmers), government extension, researchers and private sector professionals to interact with each other and find solutions to problems affecting them all. For many workgroup members this was the first time they had interacted with people outside of their own village or profession. The output of these interactions were incorporated into the AAEP II/DAIL work plans and determined the research trials established on PMTFs, ToT topics for extension workers and trainings led by extension workers at FFSs and FFDs. Figure 3 shows the makeup of the workgroup members, separated by role and sex. Of the total 729 workgroup members, about 68% are MAIL/DAIL staff, mainly extension workers.

Figure 3. The USAID role and sex of the DAIL workgroup members. Civil Society members include FFS leaders and university faculty/students.



Workgroups also developed and managed mini-fund projects; small \$5,000 grants disbursed to workgroups to establish extension programs or build small-scale infrastructure (e.g., sheep dip pool, solar panel well pump or a citrus seedling hoop house), after a proposal had been approved, first by the DAIL Director, and then by AAEP II. The mini-funds motivated workgroups to find and test appropriate solutions to agricultural problems. They also taught management skills, like how to set agendas, prioritize and clarify objectives, work across different stakeholders, budget activities and evaluate a project. Over the course of the project, AAEP II has provided funds for 43 mini-funds, 17 of which included women as managers (Figure 4).

Figure 4. Number of completed mini-funds by quarter, year and sex of recipients.



During DAIL focus group sessions conducted at the end of AAEP II, DAIL leadership in Herat, Badakhshan, Jawzjan Samangan and Balkh specifically mentioned their desire to continue using workgroups in extension work. In Herat, DAIL leadership noted that the mini-fund on controlling Crimean Congo Hemorrhagic Fever (CCHF) “first built the capacity of DAIL technical staff in livestock and then they were the ones who implemented it in the villages. More than 300 farmers were directly trained by DAIL staff and now farmers in the

rural villages know about the signs of CCHF and report it immediately to the Herat Hospital.” In Badakhshan, DAIL leadership has started compiling the successes from their mini-funds so that they can replicate this process using funds from the MAIL budget. Also, Balkh DAIL leadership pointed out that workgroups built the capacity of its members and also connected workgroup members to local farmers and promote local businesses. For example, the Livestock workgroups in Badakhshan, Balkh and Jawzjan completed three separate mini-fund project proposals in Year 2 for a total of \$7,437 USD. The mini-funds helped train a total of 140 women in silkworm cocoon and silk production. They also helped the women save any revenue from the sale of cocoons/silk to pay for silkworm supplies for the next cropping cycle. After the first year, these women earned a combined total of 594,500 AFN (\$9,146 USD) from the sale of their cocoons and/or silk; that is a 23% return on mini-fund investment.

B. Provincial Model Teaching Farms

The Provincial Model Teaching Farms (PMTFs) are a place for collaborative research to validate proposed solutions to farmer problems. The PMTF demonstration plots are also used in ToTs so extension workers and FFS leaders can “see and believe” improved practices before recommending them to farmers at FFSs. AAEP II assisted DAIL to establish six core PMTFs and 13 mini-PMTFs in 12 different provinces (Table 1). Mini-PMTFs are also demonstration sites at the DAILs but do not have the extent of training and research taking place as at the core PMTFs. The mini-PMTFs also are not fully staffed and can be as small as a single hoop house.

Table 1. Location and size of the six core PMTFs and 13 mini-PMTFs.

Province	District	City/Village	Size (ha)	WP Section	Livestock Section
PMTFs					
Balkh	Dehdadi	Pusht-i-Bagh	1.3	Yes	Yes
Herat	Injil	Urdu Khan	4	Yes	Yes
Kabul	Kabul	Badam Bagh	1.7	Yes	Yes
Kapisa	Mahmudi Raqi	Mahmudi Raqi	0.03	Yes	Yes
Parwan	Chaharikar	Chaharikar	0.31	Yes	Yes
Nanagarhar	Jalalabad	Shesham Bagh	2.2	Yes	Yes
Mini-PMTFs					
Badakhshan	Fayzabad-1	Fayzabad-1	0.04	Yes	No
Badakhshan	Baharak	Baharak	0.04	No	No
Badakhshan	Kishem	Kishem	0.04	No	No
Balkh	Nahri Shahi	Mazar-i-Sharif	0.2	Yes	No
Balkh	Dawlatabad	Dawlatabad	0.02	No	No
Bamyan	Bamyan City	Bamyan	0.5	Yes	No
Jawzjan	Shibirghan	Shibirghan	0.04	No	No
Kunar	Asadabad	Salar Bagh	0.3	No	No
Kapisa	Mahmudi Raqi	Mahmudi Raqi	0.03	Yes	No
Panjshir	Bazarak	Bazarak	0.02	No	No
Samangan	Aybak	Aybak	0.02	No	No
Samangan	Aybak	Aybak	0.5	Yes	Yes
Samangan	Hazrati Sultan	Hazrati Sultan	0.02	No	No

When AAEP I started, some of the DAIL research farms were no more than vacant lots. The Nangarhar DAIL research farm still had scattered remnants of destroyed military equipment. During the first phase of AAEP, funds were dedicated to clean up large plots at the DAIL research farms to restart regional centers for applied research, demonstrations, training and outreach. Under AAEP II, there was more focus on engaging researchers to work on the PMTFs. A total of 30 research trials were completed on the PMTFs by 12 different researchers, 18 of these trails were in Nangarhar (**Error! Reference source not found.**). These research efforts connected extension workers with DAIL researchers and university professors which were not being done before AAEP II. Together, researchers, university professors and extension workers established credible, relevant demonstrations for farmers to see improved cropping systems and the results were communicated to others farmers by extension workers through the FFDs. The total number of associated FFDs is 175. The impact of these improved cropping systems has been a total yield increase of 3,542 kg for wheat, 2,945 kg for maize, 12,000 kg for melons and 11,200 kg for bitter gourds across all involved FFDs (Table 2).

Table 2. Research collaborations at DAIL PMTFs, names of research trials and number of associated FFDs.

Province- Researcher Role	Collaborative Research Name	Trial End Date	# FFDs	Estimated Total Increase in Yields (kg)
BLK- Univ. Professor	Forest tree species adoption for reforestation	1-Apr-17	0	
BLK- Univ. Professor	Effects of melon planting timing on melon fly control	30-Jun-16	1	12,000
BLK- Private Sec. Supplier	Optimum planting date for soybeans in summer; canola as a rotational crop	5-Jun-16	0	
HRT- Univ. Professor	Almond germination rates: shell vs. no shell	15-Dec-15	0	
NGR- Govt. Researcher	Comparison of bitter gourd trellising and traditional planting methods	30-Aug-15	10	11,200
NGR- Govt. Researcher	Adaptation trial of tomato varieties under agro-climatic condition of eastern Afghanistan	20-Jul-15 and 20-Jul-16	0	
NGR- Govt. Researcher	Comparison of okra irrigation systems: drip, furrow and flood	30-Aug-15	0	
NGR- Govt. Researcher	Adaptation trial of cabbage varieties under agro-climatic condition of eastern Afghanistan	31-Jan-16	0	
NGR- Govt. Researcher	Optimum wheat seeding rate for maximum yields	17-May-15 and 30-May-16	89	3,542
NGR- Govt. Researcher	Optimum wheat spacing between rows for maximum yields	17-May-15 and 30-May-16	0	
NGR- Govt. Researcher	Comparison of tomato trellising and traditional planting methods	20-Jul-15	1	
NGR- Govt. Researcher	Management of pepper wilt complex disease	30-Aug-15 and 30-Aug-16	0	
NGR- Govt. Researcher	Optimum fertilizer rates for maize	10-Oct-15 and 15-Oct-16	0	
NGR- Govt. Researcher	Effects of maize planting density on yields	10-Oct-15 and 15-Oct-16	0	
NGR- Govt. Researcher	Maize hybrid variety yield trials	10-Oct-15 and 15-Oct-16	0	
NGR- Govt. Researcher	Comparison of different planting methods: raised beds, ridges, flat/row and broadcast	30-May-16	0	
NGR- Univ. Professor	Comparison of cabbage irrigation systems: drip, furrow and ridges	20-Jan-16	0	
NGR- Univ. Professor	Comparison of eggplant irrigation systems: drip and furrow	30-Aug-16	0	
NGR- Univ. Professor	Different weed control methods (chemical, physical and organic) in wheat production	10-Jun-16	0	
NGR- Univ. Professor	Wheat variety trial experiment	10-Jun-16	0	
NGR- Univ. Professor	Conservation agriculture wheat production	10-Jun-16	0	
NGR- Univ. Professor	Comparison of minimum tillage vs. conventional tillage in maize	15-Oct-16	74	2,945
PRN- Other	Practical pepper wilt control	30-Sep-15		
Total			175	29,687.4

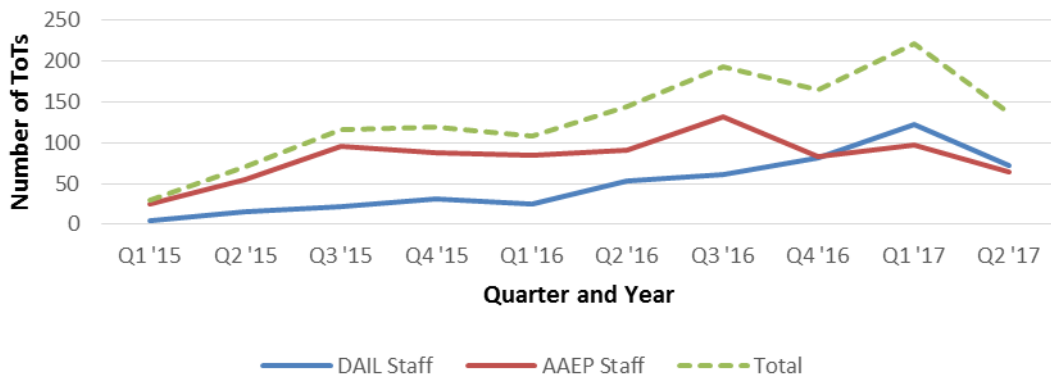
During the last year of the project, AAEP II worked with the DAILs to come up with ways to continue managing collaborative research on the PMTFs without donor support. One of the primary obstacles in achieving this is lack of collaborative agreements between different government ministries in Afghanistan. For example, allowing university faculty or students to establish collaborative research trial on DAIL property would require a Memorandum of Understanding (MOU) between the Ministry of Higher Education and MAIL; or a similar MOU between a local university and the DAIL. Another critical challenge to the DAILs independently managing the PMTFs is in the PMTFs operations costs. While many of the investments AAEP II made at the PMTFs were one-time costs, like water tanks, land clean up or levelling, the salaries of staff needed to manage and guard the PMTFs are currently not in most DAIL budgets. While the PMTFs can generate revenue through the sale of produce that could be used to cover a portion of the operating costs, the Ministry of Finance does not allow for the kinds of decentralized funding structures that would allow for independent, fiscal sustainability.

C. Training-of-Trainers

The goal of the Training-of-Trainers (ToTs) workshops was to give extension workers and community leaders³ the knowledge, teaching skills and practical experience to provide training and technical assistance to farmers at the FFSs. Since the beginning of the project, AAEP II has sponsored 1,307 ToTs for 8,568 people (6,010 men, 2,558 women), the majority of them being producers (i.e., farmers, ranchers) and people in civil society (i.e., community leaders, university faculty/students). Since the 4th quarter of 2016, DAIL extension workers and community leaders led more TOTs than AAEP II staff. This was a positive trend away from the reliance on AAEP II staff to organize and conduct ToTs (Figure 5). Before AAEP II, there were no DAIL staff leading ToTs.

³ Community leaders are a very important part of the AAEP II extension model and are emphasized throughout this report. They are mostly female FFS leaders who volunteer their time and skills to the AAEP II-WA program to make up for the low number of female extension workers employed in the DAILs in Afghanistan.

Figure 5. The relative number of ToTs led by AAEP II and DAIL staff by quarter and year.

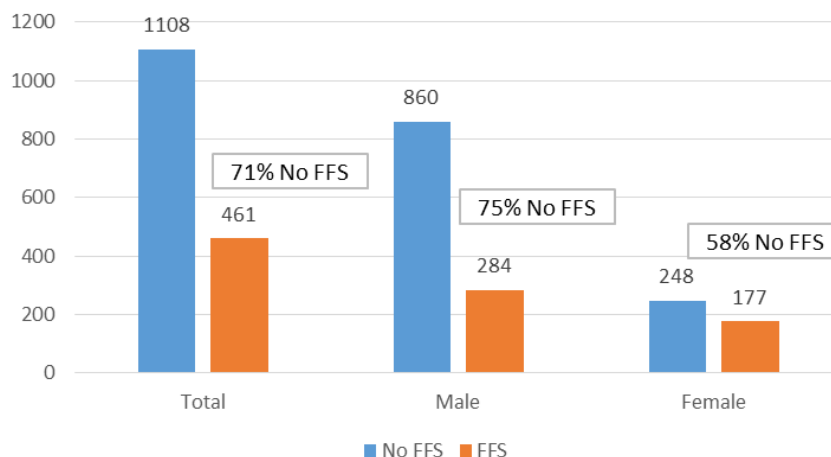


A key part of the ToTs is to teach trainees how to teach, not simply what to teach. About 87% of ToTs included an “extension methods” component to improve message delivery at the FFSs, in addition to technical skills. Of the total 1,307 ToTs, 102 of them focused exclusively on extension methods (i.e., did not include a technical component). Other frequently taught topics at the ToTs included vegetable and fruit production (391), livestock production and health (241) and postharvest (142). Another part of improving message delivery is the ability to develop extension materials that can clearly present a key message to farmers. Extension workers and university students authored 102 extension materials during the life of the project (Indicator 1.1c). Some 52 extension materials were authored by local researchers (i.e., university professors, NGO and DAIL researchers) and 34 by women university students who also led FFSs as part of their internship with AAEP II-WP. Before AAEP II, extension workers and researchers were not authoring their own extension materials to be used in training farmers. All of these extension materials were included as part of the 5.53 GB worth of material (i.e., 182 extension and 235 training materials) submitted by AAEP II to the MAIL Director of IT, Mr. Hasibullah Habib, who was responsible for the MAIL Knowledge Bank (KB), digital library and farmer call center. The Director of IT assured AAEP II that the extension/training materials would be made part of the KB.

While AAEP II worked hard to improve the technical and extension capacity of DAIL staff and community leaders through the ToTs, did it actually translate into an increase in extension activities, such as an FFS, with producers? Was there any correlation between the number of ToTs attended by a trainee involved in extension and their desire/confidence to start a FFS? Of the 8,568 ToT trainees, only about 1,569 of them were expected to be involved in extension activities. This includes, obviously, DAIL staff, but also community leaders. On average, male DAIL staff attended six ToTs and community leaders two ToTs; female DAIL staff attended an average of ten ToTs and community leaders seven ToTs. For women, three AAEP II ToTs resulted in a FFS training, with about 50% of the trend in the data being explained by this relationship. For men, there is much less consistency; five AAEP II ToTs resulted in a FFS training, but only 13% of the trend in the data explained this

relationship. The male data set contains a much larger group of men who attended ToTs who did not lead a FFS (75%); 58% of women who attended ToTs did not end up leading a FFS (Figure 6).

Figure 6. Number of DAIL staff/community leaders trained at ToTs who started FFSs.



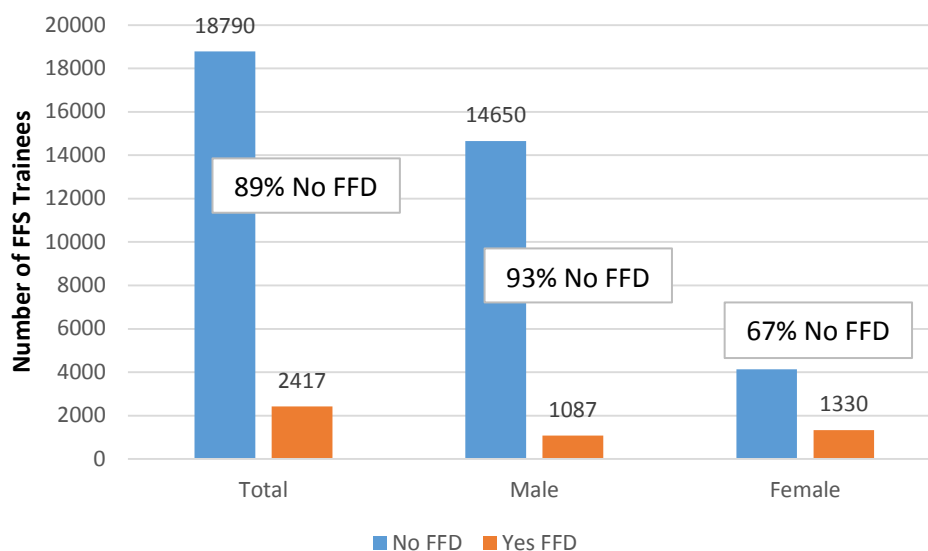
These data bring into question the theory of change assumed by AAEP II, which was to address the technical and methodological shortfalls of extension and the DAILs would then be able to deliver demand-driven extension to rural clientele. This would also be coupled with the improved administrative skills gained by the DAILs from the Capacity Building and Change Management Program (CBCMP II). The reality however was much more complex. There were some explanations given among AAEP II national staff as to why there was a persistent barrier in motivating extension staff to put into practice what they learned at the ToTs. These included things like: 1) DAIL staff simply lack the motivation to perform new job duties, 2) DAIL staff are only interested in free handouts, and 3) DAIL staff still lack access to basic resources that would help them to perform their jobs, like transportation and phone cards to contact and meet with farmers. During AAEP II's final evaluation process, focus group sessions with extension workers were held at the different DAILs where AAEP II was active. The extension workers were split into two groups: the first group was made up of active FFS leaders and the second group did not lead any FFS trainings despite attending ToTs. The groups were asked why they did or did not lead FFSs and responses provided insight into things AAEP II had direct control over and could have done more to address. The top three reasons given for why extension workers did start FFSs were: 1) strong desire to try new cropping systems with farmers, 2) they were selected by AAEP II because they were technical experts or methodologically proficient, and 3) they support the general mission of extension in providing outreach to farmers. The top two reasons given by extension workers who did not lead a FFS were: 1) AAEP II or DAIL management did not support them in starting a FFS and funds were not provided, and 2)

they preferred conducting extension work using other methods (like Training and Visit) and didn't accept the methods taught through the ToTs.

D. Farmer Field Schools

Farmer Field Schools (FFSs) are a form of adult education where the classroom is the field and the teacher is the crop or livestock. FFSs are designed to build farmers' ability to observe, analyze, and problem solve and to improve the extension workers' capacity to facilitate experiential learning. FFSs also gave DAIL extension workers a chance to practice what they learned at the ToTs. Since the beginning of the project, 4,660 FFS trainings occurred at 837 FFSs. Average FFS membership size was 22 people. Some 21,207 people participated in FFS trainings (15,737 men, 5,470 women), with 96% of them being farmers. The remaining FFS trainees were primarily community leaders learning how to lead FFS trainings and university students who will be future agriculture educators. About 615 trainers led FFS sessions, with 45%, or 277, of them being women. DAIL extension staff made up the bulk of the FFS trainers at 315, followed by volunteer community leaders at 175. Sixty-seven female university students led FFS trainings as part of the AAEP II WP internship program. Male extension professionals (including FFS leaders) led an average of 4 FFS trainings in year two; in year one this average was 3.4. Women extension professionals led an average of 7.8 trainings in year two, growth over year one of an average of 6 FFS trainings. The increase in average trainings per leader demonstrates that those who chose to lead FFS maintained an ongoing connection with their FFS members over time.

Figure 7. Number of FFS trainees who did and did not start a FFD.



Building local capacity to problem solve is rooted in achieving the larger impacts of increasing yields, nutrition, income and overall agricultural sector growth in Afghanistan. AAEP II promoted FFSs as the program believed this is a particularly effective method at

encouraging adoption and adaptation of new techniques by farmers. Overall, 11% of FFS members managed a farmer field demonstration (FFD). About 24% of women who attended FFS trainings started FFDs while only 7% of men had FFDs (Figure 7). One part of the explanation for this difference in adoption is the way programs for women were managed compared to men. Women who participated in FFSs were expected to start their own kitchen gardens. Women's FFDs were supported by their FFS facilitator in improving and addressing challenges in their kitchen gardens, as well as, other FFS members through self-help groups and savings boxes. Many FFSs for men would hold classes at one demonstration plot that a lead farmer was managing in close collaboration with a DAIL extension worker. In these instances, farmers were left to make their own decisions and adaptations in the following growing season given what they had learned over the course of the FFS on a new growing practice. Further discussion of FFS impacts on higher level goals is given in the following section.

During the focus groups sessions with DAIL leadership, FFSs were the most mentioned activity from AAEP II that they were interested in continuing to fund. Only one DAIL leadership team out of eleven did not mention that they would work to continue FFSs without AAEP II. DAIL leadership in Herat mentioned that "FFS were useful and [did] not require much expense, so the farmers can easily do it." They also mentioned that in Herat they received lots of requests from farmers for livestock FFSs. The Herat DAIL leadership noted that "Now FFS leadership is an easy job for the extension workers and [they] are ready to conduct FFS on any topic." In Jawzjan, DAIL Director has already written a proposal to MAIL with a budget of 2 million AFN (about \$30,000 USD) to establish 47 FFDs with FFS members. Many other provinces expressed similar sentiments to increase ability of extension staff to lead FFSs and establish FFDs; however, many of them also mentioned a need to find additional funding for things like fuel and phone-cards for extension workers to visit and manage the FFSs.

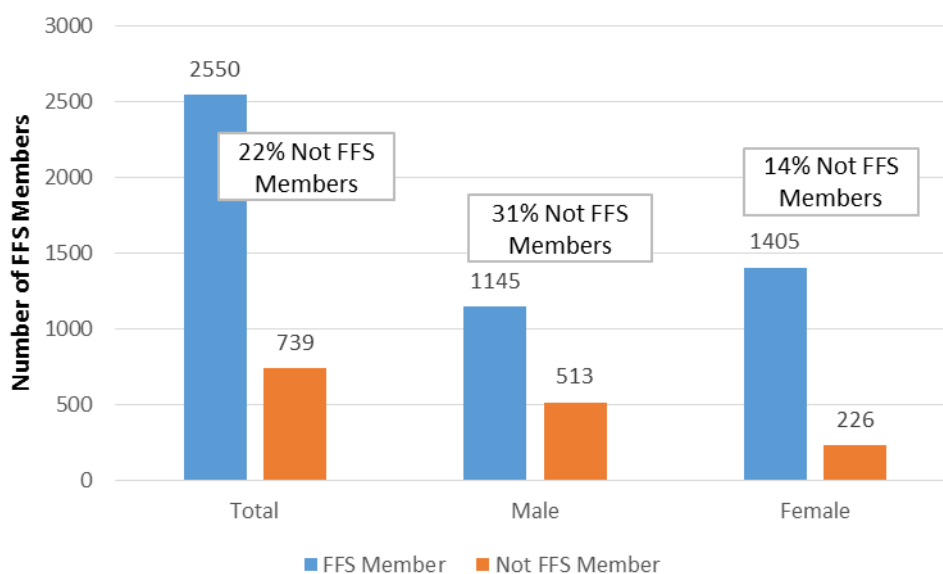
E. Farmer Field Demonstrations

Farmer Field Demonstrations (FFDs) work hand-in-hand with FFSs. They are farm trials used for FFS classes to demonstrate and validate new technologies under typical farmer conditions. The first FFD is usually established with the FFS leader and then the other members are encouraged to do the same. AAEP II promoted using FFSs and FFDs in Afghanistan because FFS members are more likely to adopt new technologies if they see community leaders adopt it on their own farms (Bentley, Barea, Equisse, & Thiele, 2007). In AAEP II, 3,921 FFDs were established by 3,289 farmers and community leaders (1,658 men, 1,631 women). Women accounted for 50% of all FFD managers. The FFDs collectively covered 157 hectares, , with other management activities like livestock vaccinations and postharvest crop storage were not given a land area value as they did not directly impact

land area. This emphasis on farmer-led demonstrations and farmer-centered adoption and adaptation of technologies is a core concept of demand-driven extension that AAEP II wanted to integrate into the DAIL extension approach. Improved practices demonstrated on the FFDs involved mostly horticultural crops (1,706), livestock (1,376) and cereal crops (582). Postharvest storage (i.e., PICS bags) also constituted a unique grouping of FFDs where PICS bags trials under local storage conditions were compared to local bags. These farmer trials of the PICS bags were cooperatively led with extension workers and provided locally-generated data on how much PICS bags were able to decrease pest damage.

Out of the 3,289 people who established FFDs, 739 never attended FFS trainings and adopted improved agricultural practices through observing other community members or through farmer lead outreach in the case of livestock; about 31% of men and 14% of women who had FFDs never attended a FFS trainings (Figure 8). 285 of these FFDs were livestock FFDs where lead farmers would teach other farmers how to vaccinate animals, make molasses blocks, trim hoofs or perform other tasks that could be completed in a one-day session and were actually completed by the farmers themselves. This farmer-to-farmer process explains the remaining 454 individuals who adopted FFDs without completing a formal FFS training.

Figure 8. Number of FFS trainees who did and did not start a FFD.



At the conclusion of AAEP II, a farmer survey was conducted to investigate the potential motivations for farmers to continue using improved practices and more importantly investigate the reasons why some farmers chose not to adopt or host FFDs. These observations can be used by the MAIL/DAIL and future programs to address larger issues across the context of Afghanistan that are continuing to inhibit agricultural sector growth.

We suspected that risk might be a factor preventing adoption of new techniques at the farm level. About 28% of farmers who led FFDs reported no risks to income. The top three risks to income that FFD managers reported were pests and diseases, low prices in the market and lack of water. For farmers who chose not to adopt technologies or manage FFDs, a similar set of responses was seen. About 32% of non-adopting farmers reported not perceiving risks to their incomes. However, for those who did perceive risks the top three were pests and diseases, the expense of treating for livestock pests and diseases and low prices in the market. Other risk factors shared by all farmers included lack of access or availability of high quality inputs including fertilizer, pesticides and improved seeds. Farmers also shared concerns over difficulty in getting goods to markets, low levels of local knowledge about new technologies and a lack of storage or cold storage. Farmers who did not adopt FFDs mentioned weather events specifically flooding, wind damage and drought. Issues like transportation to markets and cold storage appropriate for smaller-scale production are shared by farmers in many countries and present opportunities for extension to facilitate building collective solutions to overcome these shared barriers. The top three impacts listed by farmers who adopted FFDs were improved cropping systems, increased yields and new technologies. When asked why they would or would not host a FFD again, farmers mentioned that they would again for 1) high yields, 2) self-sufficiency and 3) to experience new methods.

IV. PROGRESS ON INTERMEDIATE RESULTS

Table 3. Progress against indicators table for QTR 3, Year 3 and life of program.

Indicator #	Indicator Name	Target QTR 3	Target Yr 3	FY 2017 QTR 3			Life of Project				
				Male	Female	Total	Target Life of Project	Male	Female	Total	
1											
1.1a (EG 3.2-1)	Number of individuals who have received USG supported short term agricultural sector productivity or food security training	500 (375 men, 125 women)	2000 (1500 men, 500 women)	303	191	494	10,230 (7,050 men, 3,180 women)	20,707	7,539	28,246	
1a	Producers- Farmers, ranchers, other producers	/	/	156	165	325		17,202	5,963	23,165	
1b	People in Government- DAIL Extension and Researchers, NHLP, RLMSP, Other Government Employees	/	/	72	6	78		1,505	176	1,681	
1c	People in Private Sector Firms- Private Sector Supplier	/	/	2	0	2		94	27	121	
1d	People in Civil Society - Coop/ Community/ FFS Leader, Provincial University Faculty, Other	/	/	73	20	93		1,906	1,373	3,279	
				Num.	Denom.	%		Num.	Denom.	%	
1.1b GND R-2	Percentage of female participants in USG-assisted programs designed to increase access to productive economic resources (assets, credit, income or employment)	25%	25%	191	498	38.35%	30%	7,541	28,300	26.65%	
1.1c	Number of new extension materials developed by extension workers in trainings and outreach (Custom AAEP)	1	17	0	0	0	176	76	60	136	
1.2a	Number of FFSs established (Custom AAEP)	25 (19 men, 6 women)	100 (25 women)	0	0	0	560	533	304	837	
Dis 1	Cereal Crops (wheat, rice, grains, pulses)	/	/	0	0	0		261	33	294	
Dis 2	Horticultural Crops (vegetable, fruit, orchards, etc.)	/	/	0	0	0		146	159	305	
Dis 3	Industrial and Spice Crops (saffron, cotton, sesame, etc.)	/	/	0	0	0		26	12	38	
Dis 4	Other (livestock, bees, poultry)	/	/	0	0	0		100	100	200	
1.2b	Number of FFDs established (Custom AAEP)	75 (50 men, 25 women)	300	4	13	17	1558	2214	1707	3921	
1.2c	Number of mini-fund projects allocated to workgroups and finished (Custom AAEP)	0	13	4	1	5	64	26	17**	43	
1.3a	Number of researchers and Provincial University faculty planning and evaluating demos on PMTF (Custom)	0	4	0	0	0	37	10	0	10	
1.3b	Number of new extension materials developed by researchers and faculty for use by extension workers (Custom, All non-extension material authors)	0	4	0	0	0	30	18	34	52	
1.3c	Number of agricultural input suppliers involved in FFSs (Custom)	0	2	0	1	1	40	4	2	6	
2											
1.2d*	Percent reduction in household grain losses from adoption of postharvest storage techniques (Custom AAEP)	N/A	N/A				See table for comparison across crops				
1.2e*	Percent increase in crop yields made from adoption of improved technologies or management practices (Custom AAEP)	N/A	N/A				See table for comparison across crops				
1.2f* EG3. 2-17	Number of farmers or others who applied new technologies or management practices as a result of USG assistance (USG 4.5.2-5)	N/A	N/A	2	13	15		1726	1644	3370	
17a	Value Chain Actor Type- Producers (farmers, ranchers, producers of natural resource based goods) *FFS Leaders	N/A	N/A			15				3306	
17b	Male			2	/	2		1681	/	1683	
17c	Female			/	13	13		/	1625	1625	
17d	Crop Genetics			0	0	0		55	28	83	
17e	Cultural Practices			2	3	5		594	1335	1929	
17f	Livestock management			0	0	0		710	189	899	
17g	Wild fishing technique/gear			0	0	0		0	0	0	
17h	Aquaculture management			0	0	0		0	0	0	

Indicator #	Indicator Name	Target QTR 3	Target Yr 3	FY 2017 QTR 3			Life of Project			
				Male	Female	Total	Target Life of Project	Male	Female	Total
17i	Pest management			0	0	0		2	0	2
17j	Disease management			0	0	0		0	0	0
17k	Soil-related fertility and conservation			0	0	0		29	0	29
17l	Irrigation			0	0	0		0	38	38
17m	Water management-non-irrigation-based			0	0	0		0	0	0
17n	Climate mitigation			0	0	0		0	0	0
17o	Climate adaptation			0	0	0		231	0	231
17p	Marketing and distribution			0	0	0		0	0	0
17q	Post-harvest - handling and storage			0	9	9		64	37	101
17r	Value-added processing			0	1	1		6	1	7
17s	Other			0	0	0		0	0	0
17t	Value Chain Actor Type Others (individual processors, rural entrepreneurs, traders, extension agents)	N/A	N/A			3				64
17u	Male			3	/	3		45	/	45
17v	Female			/	0	0		/	19	19
17w	Crop Genetics			2	0	2		7	2	9
17x	Cultural Practices			1	0	1		29	15	44
17y	Livestock management			0	0	0		0	0	0
17z	Wild fishing technique/gear			0	0	0		0	0	0
17aa	Aquaculture management			0	0	0		0	0	0
17bb	Pest management			0	0	0		0	0	0
17cc	Disease management			0	0	0		0	0	0
17dd	Soil-related fertility and conservation			0	0	0		0	0	0
17ee	Irrigation			0	0	0		3	0	3
17ff	Water management-non-irrigation-based			0	0	0		0	0	0
17gg	Climate mitigation			0	0	0		0	0	0
17hh	Climate adaptation			0	0	0		3	0	3
17ii	Marketing and distribution			0	0	0		0	0	0
17jj	Post-harvest - handling and storage			0	0	0		1	0	1
17kk	Value-added processing			0	0	0		0	0	0
17m	Other			0	0	0		0	0	0
1.2g* EG3. 2-18	Number of hectares under improved technologies or management practices as a result of USG assistance (USG 4.5.2-2)	N/A	N/A	0.2	0.1509	0.3509		136.6352	20.0969	156.7321
18a	Crop Genetics			0	0	0		7.2846	0.2488	7.5334
18b	Cultural Practices			0.2	0.15	0.35		93.2512	19.3642	112.6154
18c	Pest Management			0	0	0		0.2	0	0.2
18d	Disease Management			0	0	0		0	0	0
18e	Soil-related fertility and conservation			0	0	0		5.55	0	5.55
18f	Irrigation			0	0	0		0.42	0.48	0.9
18g	Water management			0	0	0		0	0	0
18h	Climate mitigation			0	0	0		0	0	0
18i	Climate adaptation			0	0	0		24.95	0	24.95
18j	Other			0	0.0009	0.0009		4.97945	0.0037	10.5266
18k	Male			0.2	/	0.2		136.6352	/	136.6352
18l	Female			/	0.1509	0.1509		/	20.0969	20.0969
18m	Joint			0	0	0		0	0	0
18n	Association Applied			0	0	0		0	0	0
*These are considered to be outside the manageable scope for AAEP II. The program reports on these indicators but does not set targets										
**Includes mini fund programs administered by "mixed" groups including men and women										
Note: In Quarter 2 of 2017 the USAID Afghanistan AOR and AAEP II leadership decided to discontinue collecting and reporting the GNDR-3 indicator as a result of a foreign assistance indicator redesign being undertaken in Washington DC.										

Updates to Data Reported in Past Quarters

- In Qtr 4, Year 2, only 335 FFDs led by women were reported. In data sheets submitted in December for activities in November, 327 FFDs were reported that were started in Qtr 4, 326 missing FFDs for women and one for a man. The correct

total number of FFDs led by women in Qtr 4 was 661 and 303 FFDs led by men; 964 in total. 8 livestock FFDs were added from Nangarhar in QTR 2 of Year 2. All of these 8 FFDs were led by farmers who had already managed livestock FFDs.

- There was also a lag in reporting completed mini-funds as local workgroups were responsible for submitting final financial reports and receipts. An insight learned over the course of the mini-fund program was that a set of soft skills for administering funds was typically lacking among workgroup members. The Chief-of-Party (CoP) conducted trainings on proposal writing for the mini fund opportunities as a beginning to bridging this gap, with provincial teams working closely with workgroups to complete reporting. This did not always happen on time, often with follow up questions before projects could be completely cleared by the AAEP II headquarters in Kabul. For Year 3, Qtr 2 and 3, four mini-funds were reported in the Qtr 3, two for men and two for mixed groups including men and women. Another mini-fund was completed after reporting for that quarter had closed, one for men in the Qtr 4, Year 2. These five mini-funds when added to past reports should explain the differences in the final life-of-program numbers presented in this table and past reports.

Evidence for Achieving Higher Level Objectives

Impact 1: Rural household food security and income generation improved

Income generation that can be directly attributed to AAEP II supported programming comes from either mini-fund programs or FFDs. Mini-funds supported income generation by helping groups collectively overcome either prohibitive start-up costs, barriers to production or re-connecting with former robust high-value products and markets. FFDs connected farmers with low-risk support for adopting new methods. In some cases, income generation from FFDs can be attributed to higher yields, in other cases income generation is equated to costs savings or increased profitability. Data used to estimate income impacts come from anecdotal evidence gathered over the life of the program and the close of program final survey with farmers who adopted FFDs. In both cases income gains are estimates and are self-reported by producers.

Data from 23 success stories estimates an average per person revenue gain of \$351. Revenue gains ranged from very high profit activities (over \$1,000 earned per person) to smaller scale production (approximately \$50 earned per person). Each success story presents a unique approach to income generation. A 140 woman silkworm cooperative used a mini-fund and teamed up with the Jawzjan DAIL to purchase silkworm eggs, produce silk and connect with local financial institutions to start a bank account where money was saved to cover production costs the following year. The women in the silkworm cooperative

earned \$65 per woman through this activity. In Nangarhar, a bitter gourd trellising mini-fund introduced 350 farmers to the benefits of trellising techniques through 10 demonstrations. The 10 lead farmers reported a collective revenue increase of \$1,563. In this case, increasing production through better practices increased per farmer revenue by \$95. In Jawzjan, teaching farmers how to plant cotton in rows instead of broadcasting seeds increased farmer revenues by an average of \$61.

One hundred and sixty-one farmers who managed FFDs responded to the AAEP II end-of-project survey about their experience with FFDs. Farmers who reported profits from vegetable production (n=48) reported an average revenue of \$764 from their FFDs. This included sales from seedlings and starts, tomatoes, potatoes, red beans, cabbage, carrots, spinach and mixed vegetables grown in kitchen gardens managed by women. A sample of farmers with wheat FFDs also reported an average increase in profit of \$30 (n= 38). When income from farmer field demonstrations is estimated using average increase in yields from trials at the PMTF matched to practice and location income gains are estimated to be between \$34 and \$136 (n= 387). These two data points give a range between self-reported income increases that may be a result of only partial adoption of practices and income increases that are possible if a full set of improved growing practices are adopted.

Outcome 1.1: Storage Losses in Grain, Animal Products and Horticultural Produce Reduced

Data collected from on-farm PICS bag trials in Herat and Badghis showed an average reduction in crop storage losses from insect damage by 20%. These PICS bag trials alone contributed an extra 1,114 kg of grains to households and an extra 2,924,940 calories to diets. The FAO reported that the average per capita intake of calories in Afghanistan in 2013 was 2,090 (Nations, 2017); the calories gained by using PICS bags provided enough calories to meet the average caloric intake of 1,400 people for one day.

Data on PICS bag adopters who did not host PICS bag trials are not available, but a local production company, Morvarid, worked with AAEP II to offer price premiums on crops that had been stored in PICS bags in an effort to incentivize and off-set the higher costs of the bags. The Morvarid Company and another company, the Soya Bean Company, used PICS bags to store purchased crops. The Regional Agricultural Development Program-South (RADP-S) program, Catholic Relief Services (CRS) and World Vision purchased 7,671 PICS bags for distribution to Afghan farmers. Assuming each bag stored 50 kg of grain, a total of 383,550 kg of grain was stored in the PICS bags. Assuming an average reduction in grain storage loss of 20%, 76,710 kg of grain was saved through these other organization's distribution of these bags. Using the FAOSTAT data and averaging the calories per kilogram of grain across the different crops tested by AAEP II (2,117 calories/kg), enough grain calories were saved to meet the average caloric take of 77,711 Afghans for one day.

Outcome 1.2: Crop Yields Improved

The 387 wheat FFDs established during AAEP II provide the strongest evidence for improved crop yields at the FFDs. A total of 60,194 kg of wheat were produced due to improved growing practices than would have been under traditional practices. Improved practices promoted for wheat production in AAEP II included changes to field preparation, crop rotations, irrigation timing, seeding rates, and using row spacing. A total of 62.11 hectares of wheat were managed using improved wheat growing practices with the average plot size just under one jerib at 0.16 hectares (a jerib is 0.2 hectares).

Impact 2: Nutritional Status of Farm Households Improved

The AAEP II women's program in the first phase of the program demonstrated the effect that kitchen gardens have on women's dietary diversity. Women with gardens eat more diverse diets, encompassing the full range of food groups in the survey, than women without gardens. Some 573 women of a reproductive age were surveyed during AAEP I. The mean number of food groups consumed by these women was 5.9 out of 9 aggregated categories of food (Table 4). Data for the project baseline were collected in May and June of 2013 by surveying women FFS members. Survey questions given at that time also contained questions pertaining to the Household Hunger Scale, as well as, household demographics and other data useful for internal program management. About 32% of the surveyed beneficiaries reported consuming all 12 of the disaggregated food groups in the prior 24 hours. Only 7% of non-beneficiaries consumed this many food groups (Table 5).

Table 4. Results from the dietary diversity scale data survey AAEP I May and June 2013.

Age Category	Avg. # food groups	# of Respondents
Women of reproductive age (15-49)	5.9	573
Women over 50	5.5	142
Women under 15	5	1
Grand Total	5.8	716

Table 5. Comparison of responses to the Women's Dietary Diversity Score survey between beneficiaries and non-beneficiaries.

Dietary Diversity Scale	Non-Beneficiary	Beneficiary
1 = lowest	2%	1%
2	4%	1%
3	5%	2%
4	4%	3%
5	9%	4%
6	8%	6%
7	10%	7%
8	11%	10%
9	12%	9%

Dietary Diversity Scale	Non-Beneficiary	Beneficiary
10	15%	11%
11	13%	14%
12 = highest	7%	32%

Outcome 2.1: Availability and Utilization of Grains, Fruits, Vegetables and Animal Products by Rural Households Increased

Some 1,051 people attended trainings specifically on health and human nutrition over the life of AAEP II. While there was not a strong correlation between training and adoption, explicitly addressing this topic allowed the program to connect agricultural activities to large outcomes and impacts. The University of Maryland, one of the AAEP II consortium partners, consulted with experts on nutrition to help design and lead trainings on special topics, like using locally available plants and foods to maintain good health. Seventy-eight men were trained on Human Health and Nutrition topics, as well as, 973 women. Of the 973 women trained, 517 were women farmers which increased the likelihood of them using products from their kitchen gardens to provide more balanced meals to their families. These trainings addressed the gap in understanding of how nutritious foods impact health and removed the knowledge gap barrier to utilizing nutritious foods. Integrated production was promoted at AAEP II trainings with an emphasis on small livestock and poultry production coupled with horticultural crops ranging from water cress, radishes, coriander, cucumbers, lettuce, tomatoes, beans, corn, squash, and onions to orchard crops. These changes in diet are demonstrated in Table 4 as measured by increased mean number of food groups being consumed by women of reproductive age. As mentioned earlier, increased yields from FFDs contributed significantly to household access to different food groups.

Cross Cutting Theme: Gender-Equality and Female Empowerment

The AAEP II Women’s Program (WP) was designed to adapt trainings to emerging needs of women farmers. The program focused on building skills not only in agricultural techniques, but also in knowledge transfer from FFS leaders to farmers and farmers to one another. The program used savings boxes in FFSs to teach women cooperation, trust, and to overcome a purchasing barrier for materials that have a significant savings when purchased in bulk. The emphasis throughout this program was to teach self-sufficiency and to affirm the message that women, too, can contribute positively to their communities, economies, and nation. This focus on empowering women was integrated into trainings that were carefully connected to local contexts. There was not a focus on creating radical changes but rather an emphasis on allowing women to find the internal strength to choose how to advocate for themselves. There are several success stories over the life of the program that highlight individual growth. The internship program summarized below contributed to building the professional skills that young women will need to contribute to the agricultural

sector in Afghanistan and demonstrates the success of the program in contributing to Afghan women's empowerment and professional empowerment.

Internship Program

The Women's Program designed their internship program to increase opportunities and encouragement for women to pursue agriculture as a profession. The internship program's objective was to provide women graduates of agricultural faculties with practical skills in extension and technical topics of Horticulture, Livestock and Agri-business to better prepare them for ministerial or private sector jobs. This aligned with the AAEP II objective of increasing demand driven extension delivery within DAILs and the MAIL by increasing the potential pool of female employees working in public sector extension. In 2015, there were only 19 publically employed female extension agents in the whole of Afghanistan. The internship program provided full time professional experience, including an introduction to the Human Resources system of MAIL, and was designed to improve the students' job opportunities in the agricultural sector upon graduation.

The AAEP II Women's Program Internship program graduated 60 female interns in January and February of 2017. These women went through a selection process and are all recent bachelor graduates from the federal universities' Faculties of Agriculture and Institutes of Agriculture. Over the life of the six month AAEP II led internship program, student interns led an average of 11 trainings per intern. The internship program was funded through additional funds made available to the women's program by USAID. 58 of the original 60 interns actually went on to lead trainings. Most interns were active FFS leaders, working with their women's groups to teach FFS leaders within the villages who could continue working with women's groups after the internship program closed. One dedicated intern led 24 trainings in the 6 months she participated in the program. Interns in Kabul who worked on the agribusiness theme had a difficult time finding enough women's cooperatives and team-taught as a way to give all interns experience in working with women's groups. Overall, these 58 young women led 615 training sessions in six months as they themselves were learning and growing; 909 women farmers attended trainings led by the interns in Balkh, Kabul and Parwan. The interns and their women's farmer groups were able to work together over six short months to learn and grow with one another. The AAEP II WP internship program has prepared these interns by allowing them to experience what conducting extension work is like and introducing them to the expectations of working within donor-funded programs. A full report of the internship program is provided in the Gender Annex.

V. FINANCIAL REPORT

Budget Line Item & sub-line items	LOP Budget per Line Item	Total Expenditures	YEAR 1				YEAR 2				YEAR 3			
			Qtr 1 (Oct-Dec 2014)	Qtr 2 (Jan-Mar 2015)	Qtr 3 (Apr-Jun 2015)	Qtr 4 (Jul-Sep 2015)	Qtr 1 (Oct-Dec 2015)	Qtr 2 (Jan-Mar 2016)	Qtr 3 (Apr-Jun 2016)	Qtr 4 (Jul-Sep 2016)	Qtr 1 (Oct-Dec 2016)	Qtr 2 (Jan-Mar 2017)	Qtr 3 (Apr-Jun 2017)	Qtr 4 (July 2017)
A. Personnel	\$796,772	\$693,505	\$72,224	\$64,881	\$72,447	\$59,028	\$66,280	\$68,972	\$67,939	\$75,157	\$54,425	\$52,193	\$15,366	\$24,592
B. Fringe Benefits	\$367,623	\$239,240	\$37,184	\$31,478	\$30,575	\$28,133	\$30,695	\$31,594	\$(2,279)	\$998	\$18,098	\$15,314	\$8,994	\$8,457
C. Travel	\$111,703	\$100,648	\$4,652	\$11,003	\$4,724	\$10,069	\$6,263	\$17,426	\$11,024	\$29,252	\$2,658	\$1,099	\$2,480	\$-
D. Equipment	\$-	\$-												
E. Materials and Supplies	\$3,770,375	\$3,794,958	\$172,340	\$208,559	\$244,243	\$214,835	\$456,345	\$374,371	\$431,509	\$522,653	\$343,613	\$512,206	\$311,414	\$2,871
E.1 National staff salaries (including casual labor)			\$16,657	\$74,832	\$110,696	\$80,288	\$143,147	\$167,412	\$143,443	\$238,014	\$141,052	\$186,815	\$166,147	
E.2 House & storage rent, incl electricity & maintenance			\$19,486	\$40,624	\$22,803	\$9,802	\$37,973	\$6,099	\$2,821	\$22,733	\$12,498	\$119,938	\$5,357	
E.3 Internet			\$545	\$7,788	\$4,914	\$5,591	\$4,668	\$8,549	\$5,492	\$9,376	\$4,904	\$6,819	\$1,502	
E.4 UCD office transactions			\$120,016	\$453	\$1,951	\$5,694	\$123,867	\$123	\$1,861	\$3,020	\$589	\$818	\$(12,119)	
E.5 Telephone & airtime			\$418	\$2,400	\$1,943	\$1,943	\$3,256	\$3,299	\$2,558	\$4,884	\$2,144	\$3,758	\$1,600	
E.6 Local (staff) travel, including meals			\$582	\$5,709	\$8,674	\$4,579	\$18,512	\$11,412	\$22,493	\$21,566	\$10,501	\$10,378	\$9,253	
E.7 Trainings (transport, lodging , meals & supplies)			\$6,168	\$33,601	\$29,343	\$56,928	\$47,206	\$63,347	\$143,423	\$92,569	\$47,147	\$30,351	\$30,761	
E.8 Meetings (SC, EC)			\$236	\$238	\$-	\$466	\$12	\$-	\$-	\$438	\$261	\$6	\$-	
E.9 DAIL support			\$3,679	\$8,145	\$13,492	\$16,551	\$20,033	\$37,713	\$32,400	\$53,357	\$53,240	\$66,255	\$41,269	
E.10 Computers and peripherals			\$1,015	\$5,497	\$7,648	\$9,985	\$6,167	\$8,706	\$6,318	\$10,536	\$6,669	\$6,416	\$639	
E.11 Gen office and field supplies			\$3,112	\$24,226	\$23,574	\$20,963	\$27,081	\$43,615	\$45,382	\$49,187	\$24,931	\$48,337	\$16,702	
E.12 Mini-funds			\$-	\$-	\$-	\$-	\$-	\$16,222	\$-	\$787	\$35,099	\$26,865	\$45,740	\$2,871
E.13 USAID approved chemicals/pesticides only			\$427	\$5,046	\$19,207	\$2,046	\$24,424	\$7,873	\$25,317	\$16,186	\$4,578	\$5,450	\$4,563	
F. Contractual Services (including Security)	\$938,095	\$846,807	\$9,505	\$73,050	\$95,269	\$56,776	\$89,754	\$86,079	\$88,332	\$110,389	\$82,899	\$96,225	\$58,528	
G. US Subawards	\$12,263,510	\$11,990,601	\$-	\$491,169	\$1,354,304	\$1,261,608	\$1,187,376	\$1,693,474	\$1,278,382	\$799,627	\$614,023	\$2,091,765	\$851,991	\$366,883
H. Tuition	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-				
I. Other Direct Costs (Annual Extn Conf)	\$506,711	\$447,988	\$-	\$-	\$131,846	\$-	\$-	\$-	\$316,141					
SUB-TOTAL DIRECT COSTS	\$18,754,789	\$18,113,747	\$295,906	\$880,139	\$1,933,408	\$1,630,449	\$1,836,713	\$2,271,914	\$2,191,048	\$1,538,076	\$1,115,716	\$2,768,802	\$1,248,773	\$402,802
INDIRECTS	\$1,474,982	\$2,077,223	\$66,844	\$166,808	\$239,060	\$142,004	\$203,794	\$222,700	\$351,376	\$291,652	\$127,714	\$153,669	\$97,994	\$13,607
TOTAL DIRECT & INDIRECT COSTS	\$20,229,771	\$20,190,970	\$362,750	\$1,046,947	\$2,172,468	\$1,772,453	\$2,040,507	\$2,494,614	\$2,542,424	\$1,829,727	\$1,243,430	\$2,922,471	\$1,346,768	\$416,409

VI. CHALLENGES and ACTIONS TAKEN

Issues/Challenges	Solutions (e.g., actions taken to address challenges)
Security.	Security Measures.
<p>Heightened security concerns resulted in careful monitoring of project movements both on the ground and on flights within and outside the country. In addition, expansion efforts into additional provinces and districts across the country were hampered by concerns over security in these regions. Reported incidences of kidnapping for ransom continued to rise.</p>	<p>AAEP II operated under a security system that incorporated intelligence and Standard Operating Procedures (SOPs) that were considered “best practices”. Services were low-profile but included extensive intelligence collected from the National Directorate of Security (NDS), other security firms, local police officers and other Afghan and international government sources. Intelligence was communicated several times each day electronically. The security contractor (Premier International Risk Management) provided advice on and oversight of project-wide staff movements, assistance in ensuring security of guesthouse facilities at all project sites, training and oversight of national employees working as guards, as well as, emergency evacuation services if required. This assistance did not change the deterioration of the security environment in Afghanistan but provided project personnel with the tools needed to remain as safe as the situation allowed. The greater threat of kidnapping resulted in even more caution in project movements and reliance upon increased on-the-ground intelligence. In addition, USAID required Implementing Partners (IPs) to report on the impacts of security on project implementation every month through RCU reports. The reports assisted project personnel in understanding the effects of an insecure environment on economic development activities.</p>
Registration as an NGO.	Legal Counsel.
<p>UC Davis has had difficulty registering AAEP II with the Ministry of Economy (MoE). This is</p>	<p>AAEP II is currently seeking advice from senior campus counsel at UC Davis. Though some US-</p>

Issues/Challenges	Solutions (e.g., actions taken to address challenges)
<p>because UC Davis is a state university and not a Non-Governmental Organization (NGO). There was discussion in April 2016 to register AAEP II as non-profit investment project through the Ministry of Commerce, however, this idea was rejected. In May 2017, a new registration request was sent to the Economic Section of the U.S. Embassy in Kabul requesting them to introduce UC Davis to the appropriate ministries using the equivalent university documentation, such as the university charter, instead of corporate NGO information. The request for a registration letter was not given by the U.S. Embassy and they recommended consulting an Afghan lawyer, which was done previously with no avail.</p>	<p>based universities have been able to successfully register in Afghanistan, they were able to do so because they formed a NGO; such is the case with Purdue University. However, it is not UC Davis policy to form an NGO independent of the university.</p>
<p>Close Down of Project.</p>	<p>Appropriate Planning.</p>
<p>While the close down of AAEP II was anticipated, it happened very quickly due to cash flow problems between the prime (UC Davis) and other consortium members. Also, the departure of the Chief-of-Party towards the end of the project did not make things any easier. It was difficult to suddenly have to coordinate budgets, staffing levels, field activities, reporting requirements and disposition of USAID property between all the consortium partners in such a short time period.</p>	<p>One of the first steps to close down the project quickly and efficiently was to close all project AAEP II houses and move most of the expat staff to a secure hotel where they could all stay and collaborate to accomplish required tasks. This move reduced housing expenses as well as the number of required administrative staff.</p> <p>Meeting with the OAG team also helped pull together a close out plan and close the project two months earlier than scheduled.</p>
<p>Multiple Simultaneous Project Assessments.</p>	<p>Time Management and Prioritization of Activities.</p>
<p>AAEP II participated in three simultaneous assessment exercises including: the financial audit for the first year of the project, an assessment of the data collection, management and analysis for the project M&E, as well as, a technical assessment for purposes of collecting data on how the project has functioned over the</p>	<p>AAEP II project personnel involved in M&E, administration and implementation reprioritized activities to meet the requests of the assessment contractors requesting documents, records and procedural explanations. The assessments were useful exercises for the project and resulted in improved procedures and administrative</p>

Issues/Challenges	Solutions (e.g., actions taken to address challenges)
<p>first two years and how these data might support improvements for any future USAID-funded extension projects. All were productive exercises, but the challenges came from three nearly simultaneous evaluations and the impacts of these assessments on the regular data analysis and reporting workload of project personnel in addition to the day-to-day administrative and technical implementation of the project.</p>	<p>capacity on the project. The challenge during the process was that much of the information was duplicative and each assessment contractor was operating in complete isolation of the other. A recommendation for future such evaluations might be coordination through a single USAID unit so that efforts on IPs do not have to be duplicated for the different evaluations.</p>
<p>Compliance with USAID Environmental Regulations.</p>	<p>Modification of Afghanistan PERSUAP.</p>
<p>One of the major issues confronting livestock owners is management of parasites. The 2013 and the newly revised 2016 version of the Afghanistan PERSUAP restricted the use of cypermethrin and related ectoparasite chemical treatments. This restriction had proved to be a serious problem in managing infestations of parasites.</p> <p>Also, as part of the implementation of the environmental review of AAEP II activities to ensure compliance and adherence with project environmental manual and the PERSUAP, AAEP II was requested to review all mini-fund proposals/projects to ensure that the proper procedures and documentation of those procedures were completed.</p>	<p>Given the importance of parasite management to the livestock industry in Afghanistan, the Mission Environmental Officer (MEO) worked with AAEP II to investigate and eventually approved cypermethrin for inclusion on the list of approved livestock pesticides in the Afghanistan PERSUAP. AAEP II developed training for project staff and DAIL extension personnel to ensure that this chemical was administered in an environmentally appropriate way.</p> <p>For the mini-funds, the AAEP II team carefully reviewed all existing mini-fund proposals, along with the MEO, in the context of the Environmental Manual regulations. The MEO concurred that while all mini-fund activities required completion and submission of the Environmental Review Form (ERF), none of the mini-fund projects merited completion of the Environmental Review Report (ERR). All were submitted and approved by the MEO.</p>
<p>Over-Expenditure of Budget Line Items.</p>	<p>Project Budget Realignment.</p>
<p>Adoption of a new budget monitoring system for determination of burn rates revealed spending rates in the Materials and Supplies line item of</p>	<p>The UC Davis fiscal team undertook fiscal analysis and developed a new budget that realigned the project budget by moving monies from within the budget to the line item that was</p>

Issues/Challenges	Solutions (e.g., actions taken to address challenges)
the AAEP II budget to be over 10%.	over the 10% limit. The realigned budget was approved in 2016.
Expansion Limitations.	New Strategies.
AAEP II achieved its project goal of providing extension trainings to DAIL staff in 25 provinces across Northern, Central, Eastern and Western Afghanistan. However, AAEP II continued to receive requests by MAIL, as well as individual DAILs, to expand into other provinces. For example, AAEP II received requests for expansion from DAIL Directors into Daykundi, Paktiya, Khost and Sar-e-Pul.	In spite the demand for expansion, there was just not enough time or money to start up new programs in new provinces in Afghanistan. As a consequence, AAEP II focused on enriching programs in as many existing sites as possible. An additional, major focus was placed on finding ways to sustain advances made during AAEP II. There were numerous lessons learned and recommendations for new sites for any follow-on projects to continue the work begun by AAEP II.

VII. LESSONS LEARNED and RECOMMENDATIONS

Through participation in the USAID hired assessment evaluation⁴ (This process was valuable in assessing what is working well and in making recommendations that could improve the design of a future USAID-funded extension project) and exploring what has been learned over the implementation of AAEP II, project administration has formulated some suggestions that could be useful in designing the follow-on project:

MOU should go from the bottom to the top

The MOUs between USAID, AAEP II and MAIL did not always fit well with all the DAILs. Though the DAILs work under the authority of MAIL, the DAILs are also influenced by other powers, such as provincial governors, who may not have the same agendas as MAIL. At times, MAIL had very little influence over the DAILs, which was evidenced during the handover of the PMTFs; in short, each DAIL dealt with the handover differently according to what was more advantageous to them. Also, in the beginning of AAEP II, the DAIL Directors, Agriculture Affairs Managers and Extension Managers did not understand their roles within

⁴ Performance Review of Afghanistan Agriculture Extension Project- II (AAEP II) and Capacity Building and Change Management Program- II (CBCMP II), AID-306-O-17-00009, Assessment Report- Final, prepared by Ernst & Young Ford Rhodes Sidat Hyder.

AAEP II despite AAEP II efforts to incorporate them in the project development process. This was partly because MAIL never interacted with the DAILs to develop MOUs that would work for them. Therefore, it would be good to develop individual MOUs with each of the DAILs that could then be approved by MAIL. This would not be to complicate things or cater to the individual whims of a DAIL Director. In fact, in the end, many of the MOUs would probably be very similar to each other. However, the advantage is the DAILs would be involved in the design of the project from the very beginning. They would also understand better, since they would have decided, how extension and research staff should be involved and what would be expected of them at a more refined level.

Involve more lead farmers and agribusiness owners in workgroups

Though the initial concept of workgroups was to bring together a diverse group of people who represented different aspects of an agricultural sector, about 70% of the workgroup members were DAIL staff, mainly extension workers. In many ways, this was good because DAIL staff got involved in workgroup activities (i.e., setting training and research priorities, developing mini-funds proposals), however it limited the exposure and scope of the workgroups. In most cases, lead farmers, who are usually bigger, wealthier land owners, are well travelled and are very aware of the new varieties, cropping methods and concepts being promoted in the agriculture sector; they have much more experience than a typical DAIL extension worker. Also, the more successful agribusiness companies are updated on new variety, market demand and on- and off- season production requirements. Including more private sector experience into the workgroups would significantly benefit the DAILs. Though this seems obvious, it was very challenging to incentivize experienced professionals (i.e., agribusiness owners) to work with less experienced DAIL staff who really didn't have a vision for improving the extension system. One idea to incentivize these types of working relationships is to build training centers on private agriculture land. For example, the AAEP II Livestock Program and DAIL developed a partnership with a private sector poultry producer in Gul Bagh village, Kabul province, to build a training center on his farm. The training center was used to introduce improved poultry breeds and management to DAIL extension workers in a real-life setting. The farm owner, Esmatullah, operated the farm for food and profit while DAIL extension workers had full access to the farm for ToT and FFS trainings. Since the farm was privately owned and maintained and operated by Esmatullah, DAIL did not have to worry about the costs of maintaining its own training facilities for educational purposes. Furthermore, Esmatullah planned to have a breeding program to supply fertilized eggs for farmers in the community to improve their poultry breeds. As part of the partnership, AAEP II built a 3 m X 6 m brick poultry facility on the farm designed to accommodate 60 laying hens. This incentivized Esmatullah to work with the DAILs and be part of their workgroups functions.

Stronger link between university research and extension

There is a clear gap between research and extension in Afghanistan that currently is not being adequately addressed. Any follow-on project to AAEP II needs to focus on the integration of extension and research with the driving principle of research informing extension efforts and extension distilling the information and disseminating it to stakeholders. One of the objectives of AAEP II was to increase the number of DAIL researchers and university faculty involved in PMTF demonstrations, however this turned out to be a challenge for the following reasons: 1) the competition for jobs, prestige and publication rights between DAIL researchers and university faculty hindered collaboration, 2) the MAIL and the Ministry of Higher Education did not have a unified agenda in terms of topics for research and curriculum development, therefore, it was difficult to find a consensus on what should be demonstrated on the PMTFs, and 3) the university professors were hesitant to collaborate through the workgroups and submit mini-fund proposals due to their desire to control the research design, data collection and data analysis.

Research was also challenging to carry out with the DAILs. Many of the DAILs simply did not have enough qualified personnel with to carry out research. It was rare to find DAIL staff with a Master's Degree, let alone a PhD. Plus, many of the DAIL researchers were not interested in conducting research, partly because of the time and dedication it took to complete the research with little recognition of efforts from MAIL/DAIL. Furthermore, there were always disputes between the DAIL research and extension departments over resource allocation and land. In contrast, university faculty were very eager to do research, but wanted to do it on university property instead of at the DAILs. University faculty were also more qualified to complete the research and had more incentive to publish for recognition and job promotion. Universities also had an essentially free labor force through student internships to help complete the research. Follow-on projects to AAEP II should consider setting up an MOU between the Ministry of Higher Education and MAIL to carry out research at universities under a unified agriculture agenda. All research results would be shared with the DAILs through ToTs and publications and the DAIL workgroups would work with university professors to distill the information to be shared with farmers in the FFSs.

Sustainability of extension activities

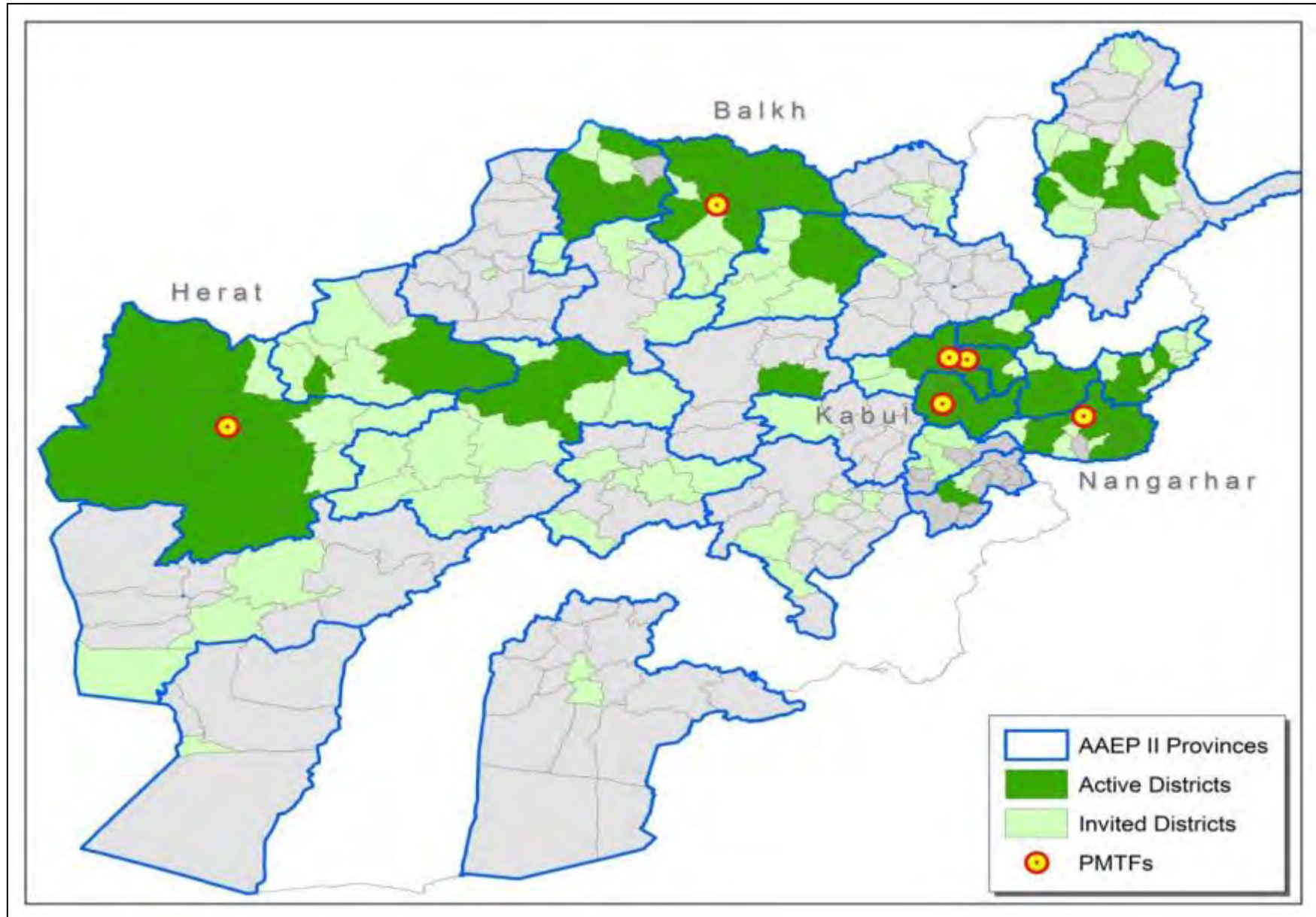
Over the course of the project, AAEP II continually pressured the DAILs to assume increasing financial responsibility for project activities (i.e., PMTF, FFS, and FFD), salaries and ongoing operational costs. This was to ensure the sustainability of project activities at the end. DAILs default response or plan of action was to find another donor after AAEP II was gone; however, this is just not a sustainable course of action especially since many of the ministries have leftover money in their fiscal budgets at the end of the year. Any follow-on

project to AAEP II needs to work with DAILs to submit fiscal budgets to MAIL to accurately take into account the costs of doing extension based on a provincial strategy.

Furthermore, there needs to be efforts to put together business models for the DAILs that would allow them to generate income that could be used to fund ongoing extension activities. This could be something like charging fees from laboratory services (e.g., soil sample analysis) to pay for laboratory supplies, develop a tissue culture lab to produce disease free plant propagation material to sell to nurseries or an animal breeding program to sell improved breeds of poultry, dairy cows or karakul sheep to herders. These types of business models would help build the capacity of extension workers and generate revenue to keep extension services financially sustainable. However, a major disincentive to the sustainability of AAEP II project initiatives, as well as, other innovative administration and programmatic changes within MAIL and the DAILs is an Afghan government policy that requires that any revenue generated by entrepreneurial activities be returned to the Ministry of Finance. This policy prohibits MAIL and DAIL from benefiting from change that produces increased revenue. This is a policy that needs to be addressed in future projects to facilitate the sustainability of project investments.

VIII. ANNEXES

Annex A. Map of AAEP II Provinces



Annex B. AAEP II Gender Annex

A. Indicators

Table 6. Gender annex progress against indicators table.

Indicator #	Indicator Name	Target Yr 3	Target Qtr 3 2017	Male	Female	Total	Target LOP	Male	Female	Total
1.1a (EG 3.2-1)	Number of individuals who have received USG supported short term agricultural sector productivity or food security training	2000 (1500 men, 500 women)	500 (125 women)	307	191	494	10,230 (7,050 men, 3,180 women)	20,707	7,539	28,246
1a	Producers- Farmers, ranchers, other producers	/		156	165	325		17,202	5,963	23,165
1b	People in Government- DAIL Extension and Researchers, NHLP, RLMSP, Other Government Employees	/		72	6	78		1,505	176	1,681
1c	People in Private Sector Firms- Private Sector Supplier	/		2	0	2		94	27	121
1d	People in Civil Society - Coop/ Community/ FFS Leader, Provincial University Faculty, Other	/		73	20	93		1,906	1,373	3,279
				Num.	Denom.	%		Num.	Denom.	%
1.1b GNDR-2	Percentage of female participants in USG-assisted programs designed to increase access to productive economic resources (assets, credit, income or employment)	25%	25%	191	494	38.4%	30%	7,539	28,246	26.7%
Note: In Quarter 2 of 2017 the USAID Afghanistan AOR and AAEP II leadership decided to discontinue collecting and reporting the GNDR-3 indicator as a result of a foreign assistance indicator redesign being undertaken in Washington DC.										

B. Major Women/Gender-Related Activities and Results

The AAEP II WP was led by the University of Maryland and expanded over the life of AAEP II to include all regions. The AAEP II WP used the same activities as the rest of the AAEP II model: workgroups, provincial model teaching farms, training of trainers, farmer field schools, farmer field demonstrations, and mini-funds. The AAEP II WP used demand-driven extension practices and experiential learning to train women leaders in the DAILs and in local communities to work with groups of women farmers to increase horticultural and small-scale animal production. Two larger projects emerged as AAEP II was underway that the WP capitalized on. The first was development of an internship program that built local higher education professionals' skills in teaching young women skills in agricultural research and extension. The second was the transfer of the provincial model teaching farm in Kabul to management by a women's cooperative formed during the first phase of AAEP I, the Darulaman Farm Cooperative. The final gender annex for AAEP II presents an in depth analysis of how knowledge and skills gained over the life of AAEP II affected adoption of practices by trainers and the farmers they trained.

Summary of ToTs

Over the life of AAEP II, the WP supported 597 trainings designed specifically for extension workers and farmer field school leaders (FFS leaders). 2,558 women were trained at AAEP II training of trainer workshops, 38 of these women are government employees, 1,234 women are members of civil society including FFS leaders, university students and professors, and staff from other NGOs and donor funded programs. The purpose of these trainings was to build local capacity to deliver extension to rural women.

Of the full group of AAEP II trainees, 277 different women led trainings at 304 different farmer field schools. 2,544 trainings were taught at these farmer field schools and extended the agricultural techniques that leaders learned at AAEP II trainings directly to women farmers. A total of 5,470 women farmers were trained at farmer field school trainings; of these 1,625 women farmers started farmer field demonstrations, an adoption rate of 31% for the entire WP which includes provinces managed by consortium members other than University of Maryland.

Training women extension workers in Afghanistan posed a unique set of challenges. Cultural barriers complicated organizing basic things like logistics to and from trainings as well as including male trainers, initially. The pool of women government extension workers in Afghanistan is very small compared to the number of men. In the provinces where AAEP II worked the program engaged with 176 female government employees and 1,505 male government employees. Low numbers of women working in government extension necessitated development of a voluntary FFS leader program where women leaders in local communities were identified by community leaders to work with AAEP II. Often, women extension workers were trained on teaching, mentoring, supporting, and advising farmer field school leaders creating a kind of nested system where the few women extension workers could work with local women leaders to train more women farmers than the extension workers could if they worked independently. Other challenges included working with women who entered the program with a very different educational background than men. In extreme cases literacy and numeracy trainings were held so that women could learn basic reading and writing skills they needed to maintain profitable and productive kitchen gardens.

Despite these challenges the WP was able to engage with a large set of women farmers as well as deepen the abilities of other groups of women. There are two special programs that demonstrate the WP success at building the capacity of future agricultural leaders and the abilities of a cooperative groups of women farmers.

Internship Program

AAEP II WP included an internship program into the work plan during year two of the program and secured extra funding from USAID for this activity. The Women's Program designed their internship program to increase opportunities and encouragement for women to pursue agriculture as a profession. The internship program's objective was to provide women graduates of agricultural faculties with practical skills in extension and technical

topics of Horticulture, Livestock and Agri-business to better prepare them for ministerial or private sector jobs. This aligned with the AAEP II objective of increasing demand driven extension delivery within DAILs and the MAIL by increasing the potential pool of female employees working in public sector extension. In 2015, there were only 19 publically employed female extension agents in the whole of Afghanistan. The internship program provided full time professional experience, including an introduction to the Human Resources system of MAIL, and was designed to improve the students' job opportunities in the agricultural sector upon graduation.

Sixty young women were selected from a large pool of applicants for entry into the program. The internship program took one month to intensively train local intern educators from local higher education institutes. A special trainer was hired for this purpose and worked with local educators to build their ability to teach demand driven extension techniques, support student led research, understand and teach study design, and contribute to their ability to effectively teach their respective technical fields to women interns. The internship program was active in Balkh, Kabul, and Parwan and focused on horticulture, agribusiness, and livestock.

After six months, the AAEP II WP internship graduated interns in January and February of 2017. In the last part of January, interns analyzed their data from their investigative projects and prepared presentations. These presentations were then reviewed and corrected by the AAEP II WP Horticultural Specialist. The students were also evaluated on their progress in computer literacy and English professional vocabulary, and general office procedures like attendance and punctuality (job professionalism). Most interns have progressed significantly in computer literacy, English, and their understanding of agriculture. As a final activity, interns presented their work at their Institutes and Universities with presentation attendees including: Deans, DAIL Directors, Ministry of Women's Affairs representatives, fellow students and teachers. Representatives from this group also gave presentations to USAID. Certificates were presented with some students receiving a Certificate of Successful Completion and others receiving a Certificate of Participation.



Photo 1. Interns and their teachers, Kabul University, Kabul.

While interns still have a significant distance to cover in all skill sets to reach international expectations of a holder of a Bachelor's degree in Agriculture, the AAEP II WP Director and Horticultural Specialist noted a maturation of the students in technical discussions and comportment. Interns' progress in intangibles of self-confidence and general awareness is noticeable. They are more aware of the complexity of their field, have acquired more practical experience, and have been able to provide more knowledge to other women. All interns still have

issues with time management, planning and keeping schedules. Some students have not reached the level of independence and confidence the program was striving to impart. Some interns have a lack of initiative and motivation, some believe they do not have to be proactive or take responsibilities; some of the explanation also lies in the local educators' weakness in both theoretical and practical knowledge. During final exams, some interns were unable to make simple calculations or to answer basic questions about their topic. These interns earned a Certificate of Participation to differentiate them from interns who reached the level of competency expected by the AAEP II WP and earned a Certificate of Successful Completion.

In each province, unstructured focus group meetings were held with the students to review their experience, challenges and new awareness. The agribusiness interns in Kabul mentioned their largest challenges in completing their projects were finding reliable and precise information and finding contacts for interviews. Horticulture interns mentioned the late start and the cold season as a major challenge in completing their projects. Often the students mentioned problems transferring knowledge and having practices adopted, having to work with very poor soils, as well as the specific difficulties of working with women in Afghanistan. Major challenges of working with farmers at FFSs include low literacy rates, requesting money to attend training, and low self-esteem. Many students found that they had to develop different materials using different language to be effective in training.

When asked about their future after this internship, a surprising number of students mentioned continuing education to Masters and even PhD level in agriculture, some mentioned continuing to work in extension and working with women. One mentioned working on the family farm and teaching the women in her village. One student in Kabul said that she wants to get her Master's degree and then in five years become the Minister of Agriculture; one student in Balkh also mentioned becoming the Minister of Agriculture. All of the students indicated that they will not let their future husbands tell them not to work.

Over the life of the internship program, student interns led an average of 11 trainings per intern. 58 of the original 60 interns actually went on to lead trainings. Most interns were active FFS leaders, working with farmer field schools to teach FFS leaders within the villages who could continue working with their FFSs after the internship program closed. One dedicated intern led 24 trainings in the 6 months she participated in the program. Interns in Kabul who worked on the agribusiness theme had a difficult time finding enough women's cooperatives and team taught as a way to give all interns experience in working with women's groups. Overall, these 58 young women led 615 training sessions in six months; 909 women farmers attended trainings led by the interns in Balkh, Kabul and Parwan. The AAEP II WP internship has prepared interns for careers in agriculture.

Darulaman Farm Cooperative

The Darulaman provincial model teaching farm was established on land technically owned by the Directorate of Livestock in Kabul but has been in transition to the Home Economics Department over the life of AAEP II. The AAEP II WP established a demonstration farm there that

featured demonstrations focused on sustainable horticultural practices for both urban and rural farmers. The farm also integrated small scale livestock with bees, poultry, and goats. During the WP expansion in AAEP II the management of the farm was transferred to a group of women farmers who had been working, learning, and growing since AAEP I activities started. These women formed the Darulaman Farm Cooperative and have established market connections for seedling production as well as products from the farm.

In the second year of the program, women at the Darulaman Farm were invited to the USAID mission to present their success in cooperatively managing the previous WP PMTF. The success in managing a productive and profitable farm in Kabul is a story that starts with 80 women whom the Home Economics Department was assisting. A greatly reduced core of the initial group is still working together to maintain the profitability and productivity of the Darulaman Women's Farm. The group of core women who are active in the cooperative have a produce stall at the farm and also have worked on marketing their seedlings and other products in a wider market. In addition to the Darulaman Farm women, over the life of the program, AAEP II received anecdotal data showing that 147 women in the program have earned \$81,442 through sales of products as diverse as silk and surplus vegetables.

Impacts of Knowledge Gain and Knowledge Transfer on Adoption of New Practices

This analysis provides an evaluation of how the AAEP II WP was able to motivate changes in farmer behavior through training extension workers and lead farmers on extension methods. This summarizes knowledge gained by trainers, measures the impact knowledge gain had on leaders' adoption of new agricultural practices, correlates the knowledge gained by trainers to farmers' adoption, and investigates other motivators or inhibitors to adoption that affect women in Afghanistan.

Agricultural Practices Survey

The AAEP II WP conducted an Agricultural Practice Surveys upon the establishment of the Farmer Field School and again at the closing of an FFS. Over the course of the program, staff and extension workers recorded field notes of visits to the FFS and FFD gardens to capture evidence of adoption. These two sources of data provided the WP with quantitative and qualitative analysis of impact of the WP activities on adoption.

Data Sources

Data from this analysis come from agricultural practice surveys conducted as part of the program's monitoring and mentoring activities. Data from pre- and post-tests given to trainers attending AAEP II trainings are used to measure changes in knowledge gained. Qualitative data come from farmer field school focus groups conducted at the end of year two to learn more about the other motivators in choice of adopting new practices that exist for women in Afghanistan.

Lead farmers and extension workers attended trainings at the program managed demonstration farms within each of the provincial DAIL compounds. The extension workers and lead farmers were tasked with training at least 10 women farmers in their village using their own farmer field demonstrations as teaching sites. WP staff regularly visited the gardens of the extension workers and FFS leaders to monitor and mentor their adoption. Mentoring and monitoring ensured the complete and accurate transfer of skills to the FFS leader. FFDs reflect purely the farmer to farmer transfer of knowledge and skills as there was limited interaction between the AAEP WP staff and farmers, though many farmers did make at least one visit to the demonstration farm, typically as part of a field day event or specialized training.

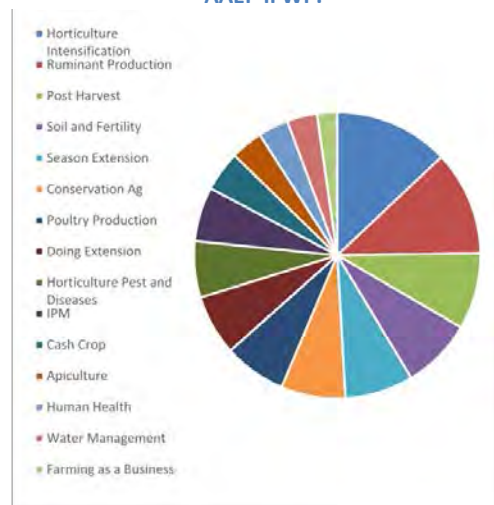
The Agricultural Practices Surveys contains 481 field notes representing information on 262 randomly selected individual women in the provinces of Balkh, Kabul, Kapisa, Parwan and Samangan between November 2014 and February 2017. Of those, 10 were official government women Extension Workers, 140 are lead farmers and 112 are farmers with farmer field demonstrations.

Data from pre- and post- tests given to participants after trainings with enough theoretical composition to justify a test is used to demonstrate knowledge acquisition by extension workers and farmer field school leaders. Knowledge gain is measured in increase in percentage points of answers that are graded as completely correct, partially correct, incorrect, or not answered.

Women’s Program Training Methods and Topics

The AAEP II WP focused on training women extension workers and community-leaders practices such as conservation agriculture and extension methods. Agricultural practices would improve kitchen garden and small holder livestock production and human health and nutrition if used correctly. The distribution of topics varied by location due to sensitivity to local demands. The majority (56%) of the trainings concerned conservation agricultural and horticultural practices which sustainably improve horticultural production. Figure 9 also presents the 17 training topics under analysis in this annex.

Figure 9. Percent of trainings by category for AAEP II WP.



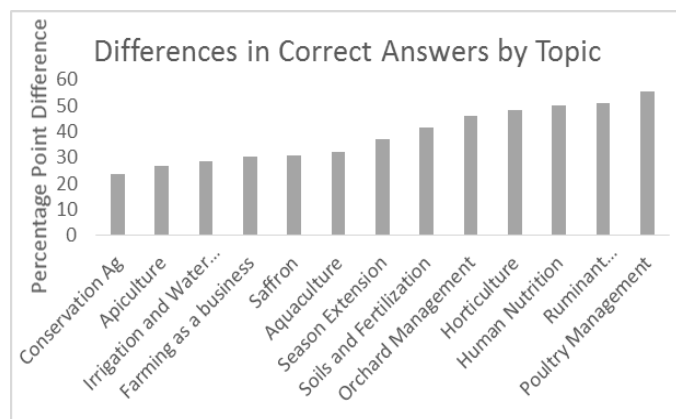
Of the training categories under analysis almost a quarter (23%) concerned the intensification of production by focusing on practices such as deliberate spacing (row planting), trellising, preparing seedlings, and planning (using a crop calendar). The second largest category concerned soil quality and soil fertility which includes practices such as making organic compost, vermiculture, identifying soil structure to understand related water permeability.

Changes to Knowledge: Evidence from Pre- and Post- Tests

Not all teaching sessions were followed with a pre and post-tests as some of the topics were very practical and did not lend themselves to being tested in written form. However, it was a general policy of the WP to give these tests when possible. In addition, not all topics were covered in all provinces. In the case of Kabul some topics were covered in the previous phase, (AAEP I). Curriculums were governed by season and demand of farmers and extension workers. Aggregate test questions created a list of 294 unique questions in 15 knowledge areas. They were scored as either completely correct, partially correct (meaning the answer given was on the correct track but there were important elements missing), not answered, or completely incorrect (meaning the participant was on the wrong track or missed the concept). For this last category, we included some notes as to what concepts were misunderstood to see if they were addressed in the training. While both a wrong answer and not answering indicate a lack of knowledge, quantitative analysis combined these categories while in qualitative analysis they are separate.

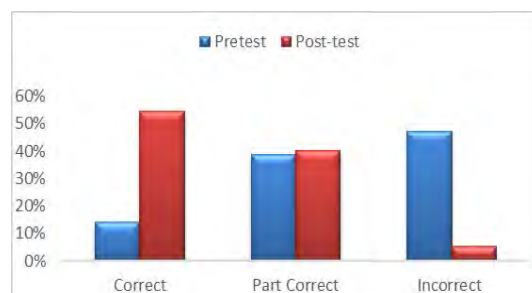
Of responses to pre-tests, 14.12 % of the answers were completely correct, 38.83% were partially correct, 21.36% were incorrect, and 25.69% were not answered. Of those participants taking the post-test, 54.43% were correct, 40.18% were partially correct, 1.95% were incorrect, and 3.43% were not answered. Comparing the post- tests with the pretests, completely correct answers increased 40.31 percentage points while incorrect and/or questions left un-answered decreased a total of 41.67 percentage points (Figure 10).

Figure 10. Differences in % points between pre- and post- tests of completely correct answers to questions in each category.



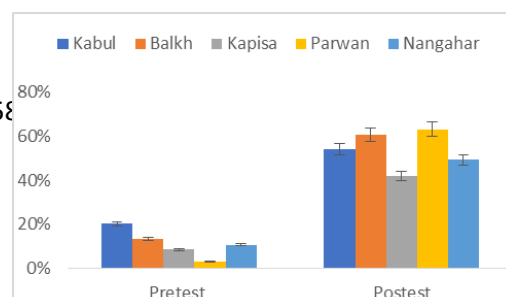
Considering only completely correct answers, the most rigorous measure of knowledge transfer, and the trainees seemed to have gained varying amounts of knowledge depending upon the topic. It should be noted that while there were no completely correct answers in postharvest post-tests, there were 100% partially correct answers (Figure 11).

Figure 11. Aggregate test questions to determine overall improvement in knowledge.



Not all provinces started with the same pre-training knowledge. Taking only the completely correct answers, Kabul started significantly ahead of other provinces in the pretests, most likely because of their participation in Phase I. Kabul, Balkh and Parwan show no significant difference in

Figure 12. Provincial comparison of completely correct scores on pre- and post-tests.

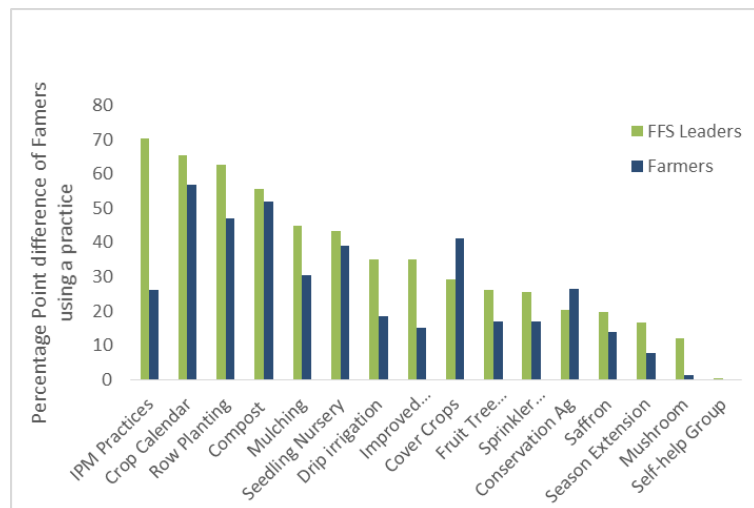


the percent of completely correct answerers in the post tests while Kapisa and Nangarhar have significantly lower scores (Figure 12). These regional differences in knowledge levels helped the WP gain a better understanding of different needs across provinces.

Adoption of Agricultural Practices

According to the field notes, of the 10 Extension Workers and 140 lead farmers included in the analysis, 2 Extension Workers (20%) and 14 lead farmers (10%) showed no attempt to implement new practices introduced by the program. Farmer field school leaders who did attempt at least one practice, attempted a mean of 10 practices (± 3) out of the 17. Their students attempted to implement a mean of 7 (± 3) practices out of the 17 by the end of the program. According to the WP Agricultural Practices Survey,

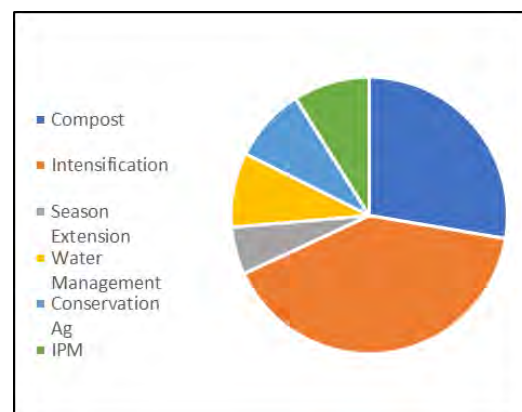
Figure 13. Effect of AAEP II knowledge gained on adoption of agricultural practices.



the practice of Integrated Pest Management showed the most growth in attempted adoption by farmer field school leaders (71 percentage point increase). More than half of the FFS leaders also improved their use of crop calendars, inputs and yields, deliberate placement of vegetable seeds instead of broadcast seeding, and organic fertilizing practices including making and using compost, compost teas, and practicing vermiculture (Figure 7). This evidence is the result of baseline and end-line agricultural practices survey conducted at the farmer field schools. The difference, in percentage points, reflects the change in the percent of participating FFS Leaders and their students implementing agricultural practices presented by the WP, in their kitchen gardens. (Note: Self-help group formation is only measured among FFS leaders and is = to .28 percentage points.)

The adoption of practices by farmers is the result of FFS leaders' transfer of knowledge and skills gained through the WP. However, there was not a one to one effect in adoption between farmer field school leaders and their students. If a farmer field school leader adopted 10 practices, their students tended to adopt fewer than 10 practices. The percentage point change in practices adopted was consistently lower for FFS students than for FFS leaders. An example of this in in implementation of IPM practices. FFS leaders increased their implementation of IPM practices, but

Figure 14. Categories of Novel Techniques Adopted



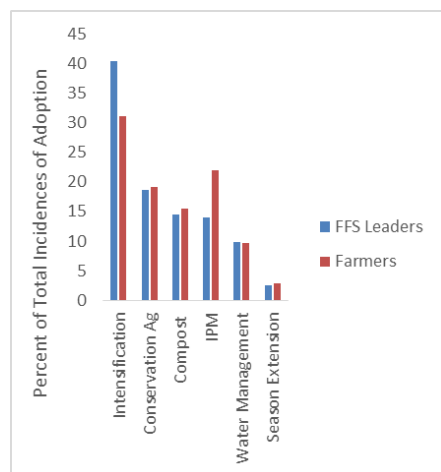
most student farmers did not follow suit. This may be due to the relatively complex nature of integrated pest management both in concept and in practice. The practice student farmers increased use of the most is crop calendars with an increase in use of (56.8 percentage points). The use of organic fertilizers (53 percentage points) and the deliberate placement of vegetable seeds (47 percentage points) were the second and third most increased practices (Figure 13).

Taking all instances of adoption among all program participants, intensification of horticulture, and the use of organic fertilizers were adopted most often (40.4% and 27.7% respectively) (Figure 14). Disaggregating these instances of adoption, shows a 92% correlation between FFS leader adoption and farmer student adoption (Figure 15). This suggests that if a FFS leader adopted a practice their students were similarly likely to adopt this same practice.

Relationship Between Training and Adoption of Practices.

There is evidence from this data that training does effect adoption of new practices for both extension workers and farmers. However, correlations are not particularly strong. For extension workers who adopt practices, there is a positive correlation between trainings and adoption. The number of lessons attended by the FFS leader, or time in training, explains approximately half of the variation in the number of new practices adopted among extension workers and FFS leaders ($r^2=0.55$). This correlation becomes negative for the subset of FFS leaders who left the program due to lack of enthusiasm for objectives ($r^2=-0.37$). For this sub set, the effect of training on adoption is negative. A negative correlation between trainings and adoption for this group might be seen as trainings' inability to alter the interest level of an individual in engaging fully with the program. The program's emphasis on a practice in training is related to extension worker adoption. There is an 81.4% correlation between adoption of a novel practice by extension workers and FFS leaders and the percent of lessons presented on the subject.

Figure 15. Percent of incidences of adoption by FFS Leaders and farmers.



For adoption by farmers, if a trainer knows a practice better, a farmer is more likely to adopt that same practice. This relationship is non-linear, nor do the data here present an empirical model for expected rates of adoption. The correlation between the gain in knowledge of extension workers and FFS leaders and the adoption of the practices by farmers is 55.7%. When a knowledge transfer from extension workers or FFS leaders to farmer adoption is looked at closely the weakness in the correlation percentage becomes clearer. For example, only 12.6% of all women farmers adopted seedling technology yet extension workers and FFS leaders gained a 62.6 percentage point improvement in knowledge as measured by 18 questions on that topic.

Correctly implementing a practice is more directly correlated to time in training than is adoption of a practice. 67% of FFS leaders correctly attempted implementation of practices

presented by the WP. The correlation between time in trainings and the percent of correctly implemented practices is 70%. Compared to the 55% correlation between adoption and time in trainings, this shows where more trainings might be more effective (in motivating correctness) compared to initial adoption. These data show that training does not fully explain the motivation to adopt a new practice. However, when adoption occurs, time in training has a much more explanatory power over *correctness* of a practice, which is critical to success in increased yields or garden productivity.

Other Motivators for Adoption

Formal trainings were supported by at least 10 visits to each of the FFS gardens in a 12-month period by the AAEP II WP technical staff for monitoring and mentoring. These correlation analyses imply that the adoption outcome and the correctness of an attempted adoption depends, in part, upon personal characteristics of FFS leaders. A management insight from this analysis is that the program should have removed the failing FFS leaders at an earlier stage. Also, the continuity and intensity of the one-on-one mentoring yields a more thorough technology transfer. These data also demonstrate the diminishing returns to continued formal training. The role that personal characteristics play in the impact of the training and mentoring on the adoption rate was confirmed during focus group meetings held at the closing of the project activities in each province and are expanded upon in the qualitative results section.

Qualitative Results

In focus group meetings, women were divided into two groups: farmer women who adopted at least one of the practices presented by her FFS leader, and women farmers who did not adopt any of the practices presented. The conversation with the second group was difficult. The women seemed unsure of themselves, they contradicted themselves often and were generally more demur and retiring. The first group of women were more outspoken and removed their burqas while the second group kept their burqas on, despite all members in the room being women. When asked, what prompted them to adopt a practice, the women in the first group reported that their results were so poor before that they were ready to try something different. All women in the focus groups got their agricultural information from relatives and had had no prior contact with extension workers. In several cases, the women withstood objections and criticism from relatives and neighbors as they adopted gardening (some had never gardened before) or different gardening practices than what are common. Most of the non-adopters could not give a specific reason as to why they do not compost or produce seedlings. Yet all agree that the FFS was successful, and that

Photo 2. Focus group meeting with farmers who showed evidence of adopting innovations, Kapisa, March 2016.



the yield results were significantly better. These qualitative observations suggest that in addition to commonly tested empirical motivators of technology adoption such as increased yields or reduced production costs there are set of personal characteristics that are also contributing factors to adoption choices.

C. GNDR-3 indicator (self-efficacy) and Use of the Generalized Self Efficacy (GSE) tool

In Q2 of Year 3, the USAID Afghanistan AOR and AAEP II decided to discontinue reporting on the GNDR-3 indicator because of a redesign of this indicator being undertaken in Washington DC. Also because of the redesign, the AOR requested changes on how AAEP II disaggregates indicators 1.2f* and 1.2g* to correspond to USAID’s revised indicators EG3.2-17 and EG3.2-18.

D. Expenditures for Women/Gender-Related Activities

Table 7. AAEP II expenditures on women-related activities.

	Number of Women	Per Woman	Total expenditures on Women	Total Expenditures AAEP II
Quarter 3	191	\$4,145.55	\$791,800.86	\$1,346,768
Life of Program	7,539	\$734.96	\$5,540,861	\$

E. Multi-tier Monitoring (MTM) of Beneficiaries (women and/or girls)

AAEP II WP monitors how women farmer field schools are applying the knowledge they are being taught for technical accuracy, and does visits to validate data; however the program does not provide direct oversight of each FFS training. The attendance data that AAEP II WP collects from the AAEP II sponsored trainings and from the FFS trainings are submitted to USAID for use in their Multi-Tier Monitoring system with the rest of the program data.

The AAEP II WP program conducts field checks and uses forms to assess 1) that the trainings are indeed occurring and 2) the quality of knowledge transfer happening. The feedback from the second observation is used to help steer trainings for the FFS leaders who are having more trouble teaching their FFS students. These observations are obtained by asking FFS students technical questions that they should know the answers to if they did attend training sessions and if the sessions were led well.

F. Unintended Results (Positive and Negative)

Negative – AAEP II has not observed any negative consequences from the WP program.

Annex C. Environmental Compliance

- A. **Environmental Mitigation and Monitoring Report (EMMR):** Nothing reported
- B. **Climate risk management in the project:** Nothing reported
- C. **Environmental Compliance from Sub-Activities:** Nothing reported
- D. **Purchase of unauthorized pesticides in 2015:**



USAID | **AFGHANISTAN**
FROM THE AMERICAN PEOPLE

MEMO FOR THE RECORD

April 17, 2016

TO: John Wilson, Acting BEO/ Afghanistan and BEO/ *me*
THROUGH: Andrei Barannik, REA/SCA & OAPA *cleared by Barannik 4/27/16*
THROUGH: Adam Silagyi, current AOR, AAEP II *AS*
FROM: Harry Bottenberg, MEO, USAID/Afghanistan *H Bottenberg 4/17/16*
CC: RLA, OAA, MEO Tracking, AAEP II Project Files

RE: Procurement by Afghanistan Agricultural Extension Project II (AAEP II) in 2015 of pesticides not listed in 2013 Afghanistan PERSUAP

Relevant environmental documentation: AGREED Original IEE, OAPA-12-NOV-AFG-007, 11/20/2011; AGREED IEE Amendment No 1, OAPA-14-MAY-AFG-0038, 05/05/2014; Memo for the Record, OAPA-15-APR-AFG-0018, 04/27/2015; Environmental Manual, AAEP II, approved 05/18/2015; PERSUAP, OAPA-13-SEP-AFG-0064, approved on 9/4/2013

Relevant USAID and AAEP II staff during time unauthorized purchase was approved: Mission Director, William Hammink; Director, OAA, Braden Enroth; AO, Beyola Belizaire; RLA, John Cardenas; AOR, AAEP II, Gary Jahn; MEO, Yitayew Abebe; REO, Andrei Barannik; BEO, OAPA, Gordon Weynand; AAEP II COP, Michael Whiteman

Purpose

The purpose of this Memo for the Record for Afghanistan Agriculture Extension Project II (AAEP II) is to document the facts behind the procurement of the following five unauthorized pesticides, the active ingredients of which were not approved in the USAID Afghanistan Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP¹): Atlantis, Atrazine, Stop Drop and Zineb (Table 1). Eight other pesticide products purchased were allowed by the 2013 PERSUAP.

Based on information supplied by COP Whiteman (email dated 01/20/2016, see Annex 1), the following steps led to the unauthorized purchase:

1. AAEP II compiled a list of inputs, including pesticides, needed by the project and sent it to AOR Jahn in May.
2. COP White did check the pesticides against the PERSUAP but apparently was confused with a.i.'s listed in the PERSUAP as chemicals imported into Afghanistan. Note: the list of allowable active ingredients is on p. 3-5 in the Executive Summary. In his request he

¹ <http://gemini.info.usaid.gov/cgat/envcomp/repository/pdf/39391.pdf>

marked chemicals he was not sure about with a question mark, with the expectation that USAID would get back with him whether or not these chemicals were allowed in the PERSUAP.

3. USAID apparently did not review the request in detail and the list was adopted as Annex 14 in the AAEP II Environmental Manual which was approved on May 18, 2015, by then AOR Jahn and MEO Abebe (Annex 2).
4. AO Belizaire approved purchase of seeds, agrochemicals and saplings (incl. the unauthorized chemicals) on May 31, 2015 (Annex 3).

Use of unauthorized pesticides in the field

Based on information supplied by COP Michael Whiteman, the pesticides have all been used in the 2015 cropping season in demo and some research plots of wheat, maize, onions, peppers, peanuts, chickpeas, strawberries and pear in farmers' fields and research stations in the following locations: Nangarhar, Laghman, Kunar, Herat and Kabul (see Table 1 and Annex 4). None of the items listed were purchased by the AAEP II Women's Program, the Balkh Regional Program or the Livestock Program. Stop Drop was purchased and used by AAEP II Kabul, Zineb and Deptrix were purchased and used by AAEP II Herat and Atlantis and Atrazine were purchased and used by AAEP II Nangarhar (see Annex 5). None of the harvest has been used for human or animal consumption as communicated previously by COP Whiteman. Total amounts used are limited in the range of 4 to 25 kg.

Impacts and remedial action

Because the quantities applied have been limited and harvested products have not been used for human or animal consumption, it is concluded that environmental and health impacts are probably limited. Access to plots was restricted in the research locations (but less so in demo plots). No remedial action is deemed necessary.

Steps to avoid purchase of unauthorized pesticides in the future

To avoid the purchase of unauthorized pesticides in the future, the following steps shall be taken with pesticide purchase requests:

1. Project staff shall carefully read the Executive Summary of the PERSUAP (to be updated in May 2016) and disseminate the PERSUAP (2016 update) to relevant staff. Note: currently, the 2013 PERSUAP is still valid.
2. MEO / DME0 shall clear in GLAAS on procurement and use of pesticides.
3. Pesticide purchase requests shall include pesticide label information (picture or scan of the label of the product) to avoid misinterpretation of the active ingredients of the product (Note: submission of pesticide label is a requirement in the PERSUAP update currently under review and expected to be approved by mid-April 2016).
4. USAID AOR and AO shall review requests for the purchase of pesticides with the MEO: no decisions regarding purchase shall be made without the MEO's consent.
5. MEO will conduct one-on-one and/or group training for AORs/CORs and selected IP staff on use of the PERSUAP once the PERSUAP update has been approved.
6. Reg 216 training by GEMS II in the period July 24-August 2 will also address PERSUAP and pesticides.

Table 1. List of restricted pesticides purchased by AAEP II in 2015.

Trade name	Type of pesticide	Active Ingredients	Quantity	Cost	Remarks	Status in 2013 PERSUAP	Location(s) used	Crops	Research or Demo
Atlantis	herbicide	mesosulfuron-methyl and mefenpyr-diethyl	13 kg	\$87	Active ingredient was erroneously listed as 2,4 -D (allowed in PERSUAP) in the request. But the actual a.i.'s in Atlantis are classified as Restricted Use Pesticides by EPA.	Not listed	1. AAEP II- Nangarhar and Kunar PMTF 2. Nangarhar , Laghman and Kunar FFS Sites (22 CA-based wheat FFS sites) <i>Note: GPS coordinates in Annex 4</i>	Wheat	CA-based wheat experiment and demos
Atrazine	herbicide	atrazine	7.5 Kg	\$197	Restricted Use Pesticide because of ground water contamination risk	Not listed	1. AAEP II- Nangarhar and Kunar PMTF 2. Nangarhar , Laghman and Kunar FFS Sites (22 CA-based Maize FFS sites) <i>Note: GPS coordinates in Annex 4</i>	Maize	CA-based Maize experiment and demos

Deptrix	insecticide	Trichlorfon	4	\$93	PAN Bad Actor	Not listed	PMTF, Urukhan Research Farm, Herat (Lat: 34.3147917; Long: 62.2753888 Urdu Bagh Village Guzara District Lat: 341624.49 Long: 621226.74	Cabbage, Cauliflower, Tomatoes, Cucumbers Squash	Demo (Demo-FFS)
Stop Drop	Plant growth hormone	alpha naphthalene acetic acid (NAA)	5	\$24	Erroneously listed as Top Drop (copper super sulfate) in the request which was passed because of similarity with allowable copper sulfate). NAA is a synthetic plant growth hormone of high acute toxicity and classified as a pesticide according to the Federal Insecticide, Fungicide and Rodenticide Act. It is also a PAN Bad Actor	Not listed	Badam Bagh PMTF N - 34 33' 20" E - 69 07" 03"	Applied to 118 apple and pear trees	Research in conjunction with MAIL Research Directorate

Zineb	fungicide	zinc ethane-1,2-diybis(dithiocarbamate)	4	\$25	Registration cancelled by EPA. Similar but not identical to Mancozeb (Manganese ethylene bisdithiocarbamate)	Not listed	PMTF. Urdukhan Research Farm Herat Lat: 34.3147917 Long: 62.2753888	Onions, Peppers, peanuts, chickpeas, strawberries	Demo
Total			47	\$426					

¹ PAN Bad Actors are chemicals that are one or more of the following: highly acutely toxic, cholinesterase inhibitor, known/probable carcinogen, known groundwater pollutant or known reproductive or developmental toxicant. NOTE! Because there are no authoritative lists of Endocrine Disrupting (ED) chemicals, EDs are not yet considered PAN Bad Actor chemicals.

Annex D. AAEP II Final Evaluation

Data for the final evaluation for AAEP II comes from program data on activities collected over the life of the program, the women's program agricultural practices data collected as part of the women's farmer field school program, and data from final evaluation focus groups with extension workers and DAIL leadership and farmer surveys. Secondary data sources include information from USDA and FAO to inform estimates on caloric intake from grains.

Methods

Data from program activities were collected primarily from sign in sheets, were verified by staff as they entered data, and were checked again when data were entered into the program database to eliminate double counting errors and entry errors. Data from farmer field schools and farmer field demonstrations were submitted by DAIL staff or FFS leaders and verified by AAEP II during program visits to sites.

The AAEP II women's program conducted an Agricultural Practice Surveys upon the establishment of the Farmer Field School and again at the closing of an FFS. Over the course of the program, staff and extension workers recorded field notes of visits to the FFS and FFD gardens to capture evidence of adoption. These two sources of data provided the women's program with quantitative and qualitative analysis of impact of the women's program activities on adoption. These field observations followed forms developed by staff in Dari.

Focus groups with DAIL leadership and extension workers were led by AAEP II staff in April and May of 2017. Staff were given prompts and instructed to allow focus groups to speak to the prompts but be allowed to provide other information at will. This follows a semi-structured focus group process. Qualitative data from these focus groups were used to bin data into larger categories for analysis.

Farmer surveys were led by AAEP II staff from April- May 2017 and included questions for farmers who had led farmer field demonstrations and questions for farmers who had not. AAEP II used this information to triangulate yield changes reported from program activity data, investigate motivations for adoption, and allow the program to reflect on continued barriers to farmers adopting new practices.

Focus Group Prompts and Farmer Surveys

DAIL Focus Group

Golden Question: How are DAILs planning on sustaining activities after AAEP II is gone?

Background: The point of these focus groups is to conduct a final, small focus group session with DAIL management. The "Golden Question" that we are trying to answer is "How are the DAILs planning to continue extension work once AAEP II is gone?" Specific activities that AAEP II has played a heavy role in promoting are training of trainer activities, farmer field schools, farmer field demonstrations, and the provincial model teaching farms.

The AAEP II program was designed on the assumption that the DAILs value what we have been doing over the past 6 years and will adopt the activities AAEP II has been teaching. If this is true then there should be evidence in their management plans that show emphasis for extension programs that continue to deliver quality programming to rural clientele that are similar to what AAEP II has been doing. This information will help us reporting on at the management level how demand-driven extension will continue to be supported or not.

Focus group composition: DAIL Director, Agricultural Affairs Manager, Extension Manager

These people must be in attendance. If there are other DAIL management members it is important to include, by all means, invite them.

Methods:

1. Present the topic of discussion for the focus group
 - a. Ask if it is OK to audio record interviews for AAEP II records and final reporting
2. Present a brief summary (no more than 5 minutes) of what the AAEP II program has accomplished in this province over the life of the USAID funded programming.
3. Facilitate an open discussion about management of extension activities after AAEP II is closed. In different provinces this will follow different paths. It is important to allow the discussion to be guided by the DAIL leadership team.
4. Audio record session if you have the equipment and consent.
5. Take notes throughout the session.
6. Type up notes and submit them to the “focus group and farmer survey” folder in the “Close out & Supplemental Data” folder under “Data submission”.

This focus group process is being replicated in the provinces where AAEP II is active, we expect a range of responses.

There are no right or wrong answers, we are aiming to collect a group of honest view points from DAIL leadership about how they plan to continue to conduct extension programming.

If audio recording is not possible (consent not given, no equipment) use written notes to document the focus group session.

Extension Worker Focus Groups Instructions

Golden Questions: Why **did you not** lead a farmer field school? Why **did** you lead a farmer field school?

The key questions that we hope to answer from this data are why some extension workers excelled at leading FFS and some did not.

Focus Group Instructions:

1. Form two groups of extension workers in each province
 - a. One group will have a sample of 5-8 extension workers who led multiple (3 or more) farmer field school training at the same farmer field school.

- b. The second sample will be 5-8 extension workers who attended AAEP II trainings but did not lead more than one farmer field school training at a farmer field school.
2. There are 3 prompted questions below for each group. Use these to guide the discussion. Do not use these like a survey.
3. Take extensive notes of responses.
4. Limit time in focus groups to a maximum of two hours for each group.
5. Type up notes and submit them to the “focus group and farmer survey” folder in the “Close out & Supplemental Data” folder under “Data submission”.

Keep in mind the golden questions, but know that there are no specific answers we are looking for. All information is good information in this exercise.

Key Questions for FFS Leaders:

Choice of FFS leaders will be made by AAEP II staff from a list of extension workers who have led more than 3 FFS trainings in a given year.

It may be helpful for AAEP II staff to provide extension workers with program data on how many trainings and farmer field schools an extension worker has led over the past 3 years prior to the group session.

- Why did you choose to lead farmer field school sessions as often as you did?
- Why do you think other extension workers did not lead farmer field schools?
- Do you have any plans for the farmer field schools you’ve established?

Key Questions for Non-FFS Leaders:

Choice of extension workers who did not lead FFS will be left to the provincial staff.

- Why did you chose not to lead many farmer field school trainings? Or why did you lead no farmer field school trainings at all?
- You attended many trainings, what did you expect to do with the knowledge you learned?

Why do you think that other extension workers did conduct so many farmer field school trainings?

Farmer Practices and Extension Attitudes Survey Instruction Sheet

Golden questions: Why did you choose to engage in a farmer field school but you did not choose to host a farmer field demonstration?

We want to know why some individuals chose to lead farmer field demonstrations and other farmers did not. This list of questions will help us qualitatively summarize program impact and outcomes.

- 1) Why do some farmers adopt new technologies, practices, or innovations and others do not?
- 2) How much more money did a farmer make because of the intervention promoted by the extension system?

3) Has the quality of extension services to rural clientele improved?

4) Is there evidence that farmers will continue to use the practices promoted by extension and AAEP II without AAEP II presence?

Administering the survey

The table below presents sampling for surveys by region. There are 2 groups who we will survey: farmers who managed FFDs and farmers in FFS who did not manage FFDs. The regional totals are based off an average of 18 surveys per province. Each province should work with Livestock staff to identify farmers who were trained at livestock FFS and include 2-3 livestock farmers as part of each of the 4 survey groups as well for example:

3 livestock farmers + 15 other farmers = **18 total farmers**

Region	Men who had FFD	Women who had FFD	Men with No FFD	Women with No FFD	Total Men/ Women
Central (Kabul, Kapisa, Parwan, Panjshir)	72	54	72	54	144/ 108
East (Nangarhar, Laghman, Kunar)	54	18	54	18	108/36
North (Balkh, Jawzjan, Samangan, Badakhshan)	72	1	72	55	144/56
West (Herat, Badghis, Ghor)	54	18	54	18	108/36
Livestock (Parwan)	18	18	18	18	36/36

Timeline: An average of 72 surveys per province will need to be given out. Breaking this down, if staff are able to work in teams of 3 people in each province each team member needs to collect 24 surveys in a day. If teams are given a 6 hours work day a full province's surveys can be completed in 1 day as long as surveys are given around 15 minutes. Cooperating with extension workers at the local DAILs can also help this process move more efficiently and quickly. The larger the team, the faster these will be completed.

To make this happen good planning is required. Meeting groups in a central location, and even conducting surveys in small groups is one way to survey efficiently and cost-effectively.

Keep this process as simple and cost-effective as possible.

Please work with M&E officers to type responses and submit them to the dropbox.

If working in teams this full task should not take more than a week.

Farmer Practices and Extension Attitudes Questionnaire:

General Information

Name of farmer:

Phone number:

Cultivation date:

Final Harvest date:

Province:

District:

A) Questions For Farmers Who Had FFDs Only (Skip to Section B if a farmer did not have a FFD)

Describe the growing practices that the farmer adopted. Label each new practice or crop (example: 1) greenhouse tomatoes, 2) Newcastle’s vaccination...)

Complete the table with information on the farmer’s growing practices described above:

Number of growing practice (from above)	Size of Land (m2) OR number of animals	Crop/Livestock and variety or varieties (please use a new line for each variety)	Yield and units (ex 45 kgs, 2 litres)	Market price of crop during harvest (average price) AFS	Costs (include items and price ex: hybrid seed, 200 AFS)

List any other benefits not expressed in the table:

1) Describe any challenges or failures that occurred during the FFD.

2) What was the impact of the FFD?

3) Are other farmers applying the same technology in your area? If yes, how many?

4) Do neighboring farmers visit the FFD to learn about the new technology? If yes how many during the life of the FFD?

5) How likely are you to manage a farmer field demonstration in the coming year, even though you will not receive support from AAEP II?

- Very likely
- Likely
- Somewhat Likely
- Unlikely
- Very unlikely

6) Please comment on why you would or would not continue to have a FFD without AAEP II.

B) Questions For All Farmers (both farmers with a FFD and without a FFD):

7) How many times in the past year did an extension worker visit you?

8) How do you rate the service performance extension workers provided to you?

- Very satisfied
- A little satisfied
- Satisfied
- Not satisfied
- Very unsatisfied

9) How do you describe the information shared with you by extension workers?

- Very accurate
- Somewhat accurate
- Accurate
- Not accurate
- Very inaccurate

10) How do **you** describe the costs of the new practices demonstrated at the FFD?

- High
- Medium
- Low

11) How do **others** describe the costs of the new practices demonstrated at the FFD?

- High
- Medium
- Low

12) How do you describe the output/ income from the new practices demonstrated at the FFD?

- High
- Medium
- Low

13) What are the risks for farmers' income?

Comments:

Owner Signature:
