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The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

CONTENTS

ACRONYMS 6

FY2016 ANNUAL REPORT: OCTOBER 1, 2015 – SEPTEMBER 30, 2016 8

- PROJECT OVERVIEW 8
- EXECUTIVE SUMMARY 8
- PROGRAM APPRAISAL 72
- COLLABORATION WITH GIROA, OTHER DONOR AGENCIES AND OTHER USAID PROJECTS 76
- MANAGEMENT AND ADMINISTRATIVE ISSUES 76

ANNEX I: PERFORMANCE INDICATOR TABLE 82

ANNEX II: ENVIROMENTAL MITIGATION AND MONITORING REPORT 82

ANNEX III: GRANTS REPORT 82

ANNEX IV: RADP-N COLLABORATION WITH GIROA, OTHER DONOR AGENCIES AND OTHER USAID PROJECT 82

ANNEX V: RADP-N TWO PAGER, GENDER FY2016 82

ACRONYMS

AAEP II	Afghanistan Agricultural Extension Project II
ACCI	Afghanistan Chamber of Commerce and Industries
ADWSO	Afghanistan Development Welfare Service Organization
AMC	Ace Management Consultancy
ANNGO	Afghanistan National Nursery Growers Association
AOI	Area of Interest
ARD	Agriculture and Rural Development
BVWO	Badakhshan Volunteer Women Organization
CA	Conservation Agriculture
CCS	Compass Consulting Services
DAI	Development Alternatives, Inc.
DAIL	Department of Agriculture, Irrigation and Livestock
DCA	Dutch Committee for Afghanistan
DCOP	Deputy Chief of Party
DoCI	Department of Commerce and Industries
DoWA	Department of Women's Affairs
dTS	Development and Training Services, Inc.
FEO	Field Extension Officer
FRDO	Female Rehabilitation and Development Organization
FGD	Focus Group Discussion
FMD	Foot and Mouth Disease
GAP	Global Good Agriculture Practices
GIRoA	Government of the Islamic Republic of Afghanistan
GIS	Geographical Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GPS	Global Positioning System
GP	Global Partners
H&N	Hygiene and Nutrition
ha	Hectare
HACCP	Hazard Analysis and Critical Control Points
HVC	High Value Crop
IDEA-NEW	Incentives Driving Economic Alternatives for the North, East and West
ILO	International Labor Organization
IPM	Integrated Pest Management
JDA	Joint Development Associates
kg	Kilogram
KSAC	Karwan Sabz Agricultural Company
LEW	Local Extension Worker
LLL	Laser Land Levelling
M&E	Monitoring and Evaluation
MAIL	Ministry of Agriculture, Irrigation and Livestock
MOCI	Ministry of Commerce and Industries
NAGC	Noor Agro Group of Companies
NAASC	Nasir Azizi Agriculture Service Company
NGO	Non-Governmental Organization

NHLP	National Horticulture and Livestock Program
NRC	Norwegian Refugee Council
OALC	Omid Afghan Livestock Cooperation,
PHDC	Perennial Horticulture Development Center
PHH	Post Harvest Handling
PIM	Provincial Implementation Manager
PPE	Personal Protection Equipment
PRB	Partners in Revitalization and Building
PVS	Participatory Varietal Selection
RADP-N	Regional Agricultural Development Program–North
RADP-S	Regional Agricultural Development Program-South
RSI	Rahman Safi International Consulting
SBD	Seed Business Development
SBDFAO	Social Development and Better Future for Afghanistan Organization
SEDEP	Sustainable Economic Development and Employment Promotion
SIMP	Sustainable Intensification of Mechanization Program
SME	Small and Medium-sized Enterprises
SMFM	Sell More For More
SMS	Short Messaging Service
SRHHP	Small Ruminant Herd Health Package
ToT	Training of Trainers
UNFAO	Food and Agriculture Organization of the United Nations
USAID	United States Agency for International Development
VFU	Veterinary Field Unit
WEWG	Women Empowerment Working Group
2WT	Two Wheeled Tractor

FY2015 ANNUAL REPORT: OCTOBER 1, 2015 – SEPTEMBER 30, 2016

PROJECT OVERVIEW

Activity Start/End Dates
May 21, 2014–May 20, 2019

Prime Implementing Partner
Development Alternatives, Inc. (DAI)

Sub-Contractors/Sub-Awardees
ACDI/VOCA, Alcis, Development and Training Services, Inc. (dTS), Dutch Committee for Afghanistan (DCA), Joint Development Associates (JDA), Pax Mondial Risk Management Company, Rahman Safi International Consulting (RSI), Afghan Public Protection Force

Project Description
RADP-N advances food and economic security for rural Afghans in six Northern provinces. To achieve this, the program strengthens the capacity of farmers in improved production in the wheat, high value crop, and livestock value chains. Its activities enable farmers to increase their commercial viability and competitiveness in response to market demand, thereby generating greater income opportunities and empowering families to better meet their household needs. RADP-N uses a value chain facilitation approach to address numerous bottlenecks and identify lead firms within area capable of leveraging positive change. The final piece of RADP-N's holistic framework is supporting a policy environment through advocacy and dialogue that strengthens the private sector.

Geographic Coverage
Badakhshan, Baghlan, Balkh, Jawzjan, Kunduz and Samangan provinces

EXECUTIVE SUMMARY

In year two, RADP-N continued wheat, high value crops (HVC), livestock, enabling environment, gender, and nutrition activities across selected provinces and districts in the northern region. RADP-N in year two implemented 49 activities and issued 68 grants valued at $5,311,355 to local partners.

RADP-N's wheat value chain activities in year two focused on: increasing farm productivity through seed business development (SBD), weed control and farmer conservation agriculture (CA) activities; the facilitation of market linkages between seed companies supplying grain to mills and specialty food manufacturers; the introduction of higher quality backpack sprayer components to Ag Depots and their suppliers; and the introduction and application of improved agricultural technologies. Particular effort went into the facilitation of market linkages between potential buyers and suppliers of laser land levelling (LLL) equipment, resulting in the demand for at least 22 units by farmers and contractors. The application of new technologies took place in the second year of contract harvesting, the development of a LLL activity, which will become operational in year three, the Sustainable Intensification of Mechanization Program (SIMP) that

will also become operational in year three, and a yield assessment methodology to measure wheat yield.

The RADP-N HVC team was active in all 26 target districts of the six project provinces with multiple interventions. The interventions with farmers ranged from improved production training to post harvest handling (PHH) on RADP-N's target HVC value chains. These trainings were attended by over 15,000 farmers. This work was further supplemented through introduction and implementation of new extension mechanisms including input supplier-owned Short Messaging Service (SMS) and live radio shows. The SMS marketing and live radio shows were conducted in parallel with other interventions through the growing season, and have been welcomed as innovative marketing tools by agribusinesses. RADP-N worked to improve the skills of 287 lead farmers, and 75 have qualified as lead farmers by acquiring the necessary skills allowing them to support activities with other farmers as per the HVC team's deliverable for year two. RADP-N trained 159 board members from 32 farmer organizations to build their management capacity and improved their leadership skills to provide services to their members. In November 2015, RADP-N linked 11 dried fruit processors and traders with international buyers by supporting their attendance at the WorldFood show in Kazakhstan. Participants in the show reported that they learned much from buyers regarding product quality and quantity demand. Sales of raisins were encouraging, but the participants acknowledge that they have to improve quality standards to increase international sales.

Throughout year two, RADP-N conducted ToT for 149 trainers (127 Veterinary Field Units-VFUs and 22 extension staff) on Small Ruminants Herd Health Package (SRHHP) and trained 2,177 targeted beneficiaries. The training package addressed animal husbandry including housing, breeding, health, and feeding. One hundred butchers received training on hygienic meat processing and handling, and their shops are being upgraded with improved equipment and tools. This activity has focused on the red meat end market as well as on consumer protection by supporting sanitary and safe meat handling practices, reduced transmission of disease to customers, reduced negative environmental impacts of current practices, and increased meat quality. A total of 2,997 goat herders received training and equipment for proper cashmere harvesting, and information about cashmere quality and market dynamics. Results from the final impact evaluation will provide guidelines for forthcoming cashmere value chain activities.

RADP-N's lamb rearing activity started in May and resulted in the distribution of 4,000 to 800 female beneficiaries. Women received training on lamb rearing, VFU services and feed supplies. The team developed a database and impact assessments were conducted. The assessment indicates that the lack of business development skill is first among the many reasons why most farmers do not operate their farms as a business. To address these issues, in April, RADP-N awarded a grant to [redacted] to implement the business development skills and value chain dynamics activity for 1,900 beneficiaries. The ToT addressing business skills and value chain dynamics was conducted for 174 people including 115 VFUs, 22 extension staff, 14 feed suppliers, two cashmere collection point operators, 15 paravet trainees, and six female interns from Balkh University.

In June, RADP-N awarded a grant for a livestock holding pen activity implemented in Baghlan province. One hundred women were selected as beneficiaries for training and to receive one holding pen each. RADP-N continues to address animal health and husbandry issues through its paravet training initiative. Five female and 10 male paravet trainees completed six months of intensive theoretical and practical training on animal healthcare and other husbandry issues including feeding, housing, and breeding to address the lack of high quality livestock services

and to increase household incomes through improved herd production. RADP-N will continue to support the paravets for two years until they become fully sustainable.

RADP-N co-sponsored 22 agribusinesses from Baghlan, Balkh, Jawzjan and Kunduz provinces to attend and showcase their products in two Kabul International Ag Fairs held in October 2015 and March 2016 in Badam Bagh, Kabul. The aim is to build linkages with farmers, producers, processors, and potential businesses. These events are the leading agriculture trade shows in Afghanistan, serving to boost trade and increase local and international investment for agriculture products. While visiting the RADP-N booths in the March Ag Fair, Minister Assadullah Zamir, of the Ministry of Agriculture, Irrigation and Livestock (MAIL), expressed his appreciation for RADP-N's cooperation with the DAILs in the north.

RADP-N completed financial management training in two rounds for 113 participants from agribusinesses, associations, and VFUs in Badakhshan, Baghlan, and Samangan provinces.

RADP-N awarded a grant to [redacted], to provide proposal writing and business plan development training in July. The five-day training was conducted for 50 businesses in two rounds from Balkh, Jawzjan, Kunduz, Baghlan, and Badakhshan provinces.

RADP-N held a conference on Afghan women's contributions in agriculture value chains for 136 participants from the six target provinces.

ACTIVITY IMPLEMENTATION

Wheat Value Chain

Direct Implementation

Market Linkages

Developing market linkages is one of the most important components of RADP-N, linking farm productivity activities and technology adoption with downstream private sector demand. Throughout the reporting year, RADP-N facilitated agreement on 30 contracts between seed companies, cookie factories, pasta factories and mills. The contracts accounted for 1,835 tons[1] of wheat grain with a value of $ 662,660. So far, 264 tons of contracted wheat have been delivered, which generated $ 112,720 in sales. RADP-N expects the remaining contracted grain to be delivered.

Thirty-seven businesses attended the market linkage event from the four provinces on August 31 in Mazar-e-Sharif.

In year two, RADP-N technical team continued facilitating five market linkage events in four project provinces involving 126 participants and 71 businesses as detailed below in the table. These events are the starting point for the market linkage activity. At the August event in Balkh province, RADP-N introduced a new variety of wheat, which Kefayat Supermarket is already buying. These events often introduce value chain players for the first time, and form

[1] The reference to tons reflects metric tons throughout this report.

the genesis of new business relationships, which lead to contracts.

Business Market Linkage Event			
#	Province	Event Date	Businesses
1	Balkh	11/25/2015	6
2		08/31/2016	37
3	Jawzjan	01/5/2016	8
4	Baghlan	09/27/2016	20
5	Samangan		
Total			**71**

Throughout the reporting period, RADP-N technical staff facilitated the analysis of wheat varieties for the market linkage events to introduce varieties to the food processors. For details please see the table below:

Market Linkage Facilitation Result					
Province	**# of Contracts**	**Contracted Volume (Ton)**	**Contracted Value (US$)**	**Delivered Volume (Ton)**	**Delivered Value (US$)**
Balkh	29	1,815	$657,842	245	$107,902
Jawzjan	5	20	$4,818	5	$4,818
Total	**34**	**1,835**	**$662,660**	**250**	**$112,720**

Backpack Sprayer Supply Chain Event

In July, the RADP-N technical team facilitated a supply chain discussion on backpack sprayers for 20 backpack sprayer importers, farmers, former grantees, Ag Depots, DAIL representatives, and two RADP-N technical staff. The team presented concerns related to quality of sprayers, booms, and nozzles. The current market supplies are low quality and expensive. The lack of better quality backpack sprayers has hampered procurement of good quality sprayers for project weed control activities.

The team explained that while various types of nozzles are available locally, they are not herbicide-specific. Still, farmers use them in herbicide application, but with poor results. Of particular concern are hollow cone nozzles, which are designed for pesticide application but are substandard for herbicide application. As an alternative, the RADP-N team discussed the flat fan nozzle, which is specially designed for herbicides.

Backpack sprayer supply chain event, Mazar-e-Sharif (Balkh) July 19

Participants observed low and high-quality flat fan nozzles and a twin nozzle boom. The RADP-N team showed that the boom fit many sprayers to enable wide use of the booms with numerous sprayer brands. Various supply chain players attended and indicated their interest in using new supplies.

Laser Land Levelling

Afghanistan's irrigated land is flood irrigated, therefore, and field level consistency is very important. Since hand tools (shovels) are the primary equipment for leveling land, it is common

for plots to be small, though this depends on the relief of the landscape. A local form of mechanized leveling, called “Rakol”, is a shovel mounted on a tractor. But this is crude, results are frequently very poor, and the operation is time consuming and expensive. LLL is a way of adding precision to the mechanized leveling process. Leveling can often result in larger planting area in a given plot, and critically, achieves very level plots, every time. Precision-leveled fields take on flood irrigation water evenly, quickly, with minimal waste or labor. The benefits include:

- No high spots where land dries quickly and crops are moisture deficient.
- No low spots where land stays water logged, damaging crops.
- No need for hours of supervising water and directing channels by hand over a field.
- Larger plots can be made, reducing land lost to bunds (soil banks and irrigation structures).
- Less water required, making it available for additional land or saving money.
- Makes it possible to build precise beds for furrow irrigation systems which are more water-efficient and favorable for water-sensitive plants.

Critically, while LLL does make manual operations easier, it sets the stage for other mechanization for the first time in fields otherwise too small or uneven for:

- Seeding (allows quicker planting and lower seed rates; rapid, even establishment and higher yields; allows mechanized fertilizer placement which reduces fertilizer requirements).
- Mechanized reaping which is less costly than hand reaping.

Several LLL machines are available in Balkh province, but not in the other RADP-N project areas. RADP-N sees an opportunity to expand LLL activity in Balkh to develop a supply chain for LLL equipment and demand for these services throughout the four provinces. The activity will link strategically to other RADP-N activities, notably in appropriate mechanization (contract harvesting and sustainable intensification of mechanization), and contribute significantly to increased productivity of wheat farmers. To introduce LLL technology, RADP-N conducted facilitation meetings, field demonstrations and surveyed equipment dealers and farmers to introduce new and innovative technologies, which will improve wheat production and productivity.

A survey of existing LLL owners took place in June and July 2015, finding seven units in Balkh, Dehdadi, and Chimtal districts of Balkh province. The RADP-N technical team discussed their experiences and business models, which informed the scale and scope of our strategy. An activity supporting subsidized sales and follow up support and demonstrations was approved by USAID in August. Six applications were received, only one of which showed promise. Negotiations with this firm, [redacted], finally ended since they were unwilling to operate without an upfront payment, 100% subsidy, and unprepared to provide the training and follow up support elements.

RADP-N decided to take a stronger hand in facilitating the market linkage process, much as RADP-N has done between seed companies, mills and food manufacturers. So on February 8, the team held a consultation in the Balkh DAIL hall designed to openly present the challenges RADP-N had faced in sourcing LLL units and finding an implementing partner to a range of stakeholders and seek possible interest or solutions. Twenty-five participants came from four project provinces, and included potential vendors, four-wheeled tractor operators, farmers and machinery importers. The event was designed to attract as many potential importers as possible. Presentations and four focus group discussions, each moderated by a pair of RADP-N

staff, provided a mechanism for participation and feedback. The discussion demonstrated great interest and enthusiasm and led to changes in our approach. One result was to increase the target number of LLL units from 30 to 40, and another was to increase the number of demonstrations planned in the after-sales activity.

Following the February event, discussions continued with [redacted] machinery importing company, which had a Field King model. It was smaller and lighter weight than RADP-N expected, but was the only model available in Mazar-e-Sharif. On March 27th, RADP-N supported a field demonstration in Samarqandyan village, Balkh district (Balkh), with 31 farmers. [redacted] representative was present to promote the Field King equipment, promising after sales support. Early interest from participants quickly turned to doubt over the high purchase price at $[redacted], and unfavorable comparisons with a larger, more robust, Pakistani model, with which some of the farmers were familiar. Despite farmers' concerns about the Field King unit, discussions continued for some time with [redacted], including some suggestions that they would import a more suitable, larger German model called MOBA. A meeting on April 13th revealed that [redacted] accepted that the Field King was too small for farmers, but they probably would not import a larger model without up-front payment. In a meeting with farmers the same day, two models from Pakistan were presented and an importer, [redacted] recommended as a potential partner.

On April 18, the RADP-N team met with [redacted], who recognized farmer interest and responded to RADP-N's interest in seeing up-front investment in a suitable model. They were positive about investing and providing after sales support and said that they would visit workshops in Pakistan. Within a few weeks, [redacted] had a high quality Pakistan LLL unit available for sale in their Mazar-e-Sharif workshop. On May 15, several farmers and RADP-N technical staff visited [redacted] to evaluate the imported unit, and all agreed that the quality and suitability were excellent. At a subsidized price, 22 farmers expressed interest in buying the new LLL units.

Shortly after, RADP-N presented a sales MoU describing an agreement in principle of roles and responsibilities for buyers, RADP-N, and the dealer, as well as a payment process. In late June, RADP-N confirmed the final LLL unit price with [redacted] at AFN [redacted]. Fourteen farmers signed the MoU on June 29, depositing their cost share with the equipment dealer of over $[redacted] each in the following days.

Since June, an additional eight farmers have been vetted by USAID, and four more are interested in buying. Since the after-sales component includes ten demonstrations for 30 farmers, the project expects to support the mobilization of each unit as a contracting business to generate further demand.

LLL field day demonstrations in Samarqandian village of Balkh district (Balkh), March 27. Field King model.

[redacted], with its own up-front investment of over [redacted], has now imported 15 LLL units ready for delivery to participating farmers. The level of interest and financial investment from farmers and [redacted] represents a significant achievement. Indeed, in a recent August 15th meeting, the RADP-N technical lead met with the head of DAIL's Department of Irrigation and staff from the World Bank-supported On-Farm Water Management North Region program. They expressed surprise

and excitement at the level of farmer investment, which they would not have expected. RADP-N anticipates that this activity will gain momentum and have a significant impact on productivity.

Yield Assessment

Following the 2014-2015 cropping year and a successful RADP-N contract harvesting activity, RADP-N wanted reliable data to determine the impact of individual technologies promoted by project activities, to analyze wheat production for planning purposes, and to enable replication of the survey in subsequent years to control for weather effects on yields. The year two yield assessment activity sampled wheat crops in 210 fields from three activities: weed control; CA; and contract farmers from the four provinces.

Materials Methods

The activity started in mid-May and was completed by August. For each field, five one-square meter crop cuts were taken, the presence of weeds noted, and additional data was collected from the farmer regarding agronomy. A qualifying location consisted of villages in which RADP-N had conducted training activity (weed control or CA) with control farmers (those who have not taken part in a RADP-N wheat training activity). For control, where check strips were left in a sprayed field the strip was used as the control comparison. When the entire field was sprayed for weed control, then the nearest available neighbor was used as the control comparison. The sub-sample cuts were done in a “W” pattern (a crop cut, or sub-sample, is a one-square meter cut of wheat using a metal frame called a quadrate; five one-square meter quadrate cuts of wheat comprise a single sample). The assumption is that the number and pattern of the cuts will together fairly represent the yield of surveyed farmer’s field. For each sub-sample, the density of both grass and broad leaf weeds population were recorded on the labels. Totally 1,040 crop cuts were taken.

Labels were attached on the outside of the sack and on the inside. The sub-samples were carefully threshed, cleaned, and weighed separately with an A&D EJ6100 digital scale, and grain moisture recorded with an AgraTronix grain moisture tester MT-16.

Yields in general averaged 2.5 tons/ha across irrigated environments 1.5 tons/ha in semi irrigated environments and 0.8 tons/ha in rain-fed environments. A particularly low yielding environment was Balkh’s rain-fed area at 366 kg/ha which contrasted with the highest yielding environment of Balkh’s irrigated area at 3.5 tons/ha. Three populations were surveyed to provide impact statistics for the weed control activity and baseline yields for CA activities and contract farmers involved in market linkages activities. Findings for each given in the table below:

Average Wheat Yields kg/ha From 210 Fields, 2015-2016			
Province	**Irrigated**	**Semi Irrigated**	**Rain Fed**
Baghlan	2,481	NA	NA
Balkh	3,544	1,551	366
Jawzjan	2,207	1,309	1,000
Samangan	1,817	1,523	1,216
Average	2,512	1,461	860

Weed Control Findings

The purpose of surveying weed control farmers was to assess the impact of applying the technology. Using either a single broad leaf weed herbicide, a single grass leaf type herbicide,

or both, resulted in higher yields in each of the main environments and 34% higher on average, as shown in the table below:

Wheat Yields (kg/ha) in Three Land Classifications, 2016/16[2]									
Province	Irrigated			Rain Fed			Semi Irrigated		
	No Spray	Sprayed	% Gain	No Spray	Sprayed	% Gain	No Spray	Sprayed	% Gain
Baghlan	2,331	2,888	24						
Balkh	3,398	3,939	16	343	427	25	1,374	2,030	48
Jawzjan	2,041	2,654	30	961	1,106	15	1,054	1,996	89
Samangan	1,552	2,536	63	1,037	1,701	64	1,292	2,146	66
Weighted Means	2,668	3,270	23	827	1,191	44	1,228	2,066	68

One of the key problems of herbicide usage, which is generally low, is late application, so an important training message was to spray early. Unfortunately, the activity started late so the spraying was limited; only 33% were able to spray. Despite the relatively low number of farmers spraying, the yield increase for this population still comes to 2,416 tons of wheat or $716,346.

Conservation Agriculture Findings
The second population surveyed was 22 CA farmers, which were taken as part of the baseline data for this activity. See the table below for results:

Yields of 22 CA Farmers in 2015/16				
CA Farmers Wheat Yields (kg/ha)			Numbers of Samples	
Province	Semi Irrigated	Irrigated	Semi Irrigated	Irrigated
Baghlan		2,653		4
Balkh	1,885	3,505	6	7
Jawzjan	2,280	2,206	1	2
Samangan		1,419		2

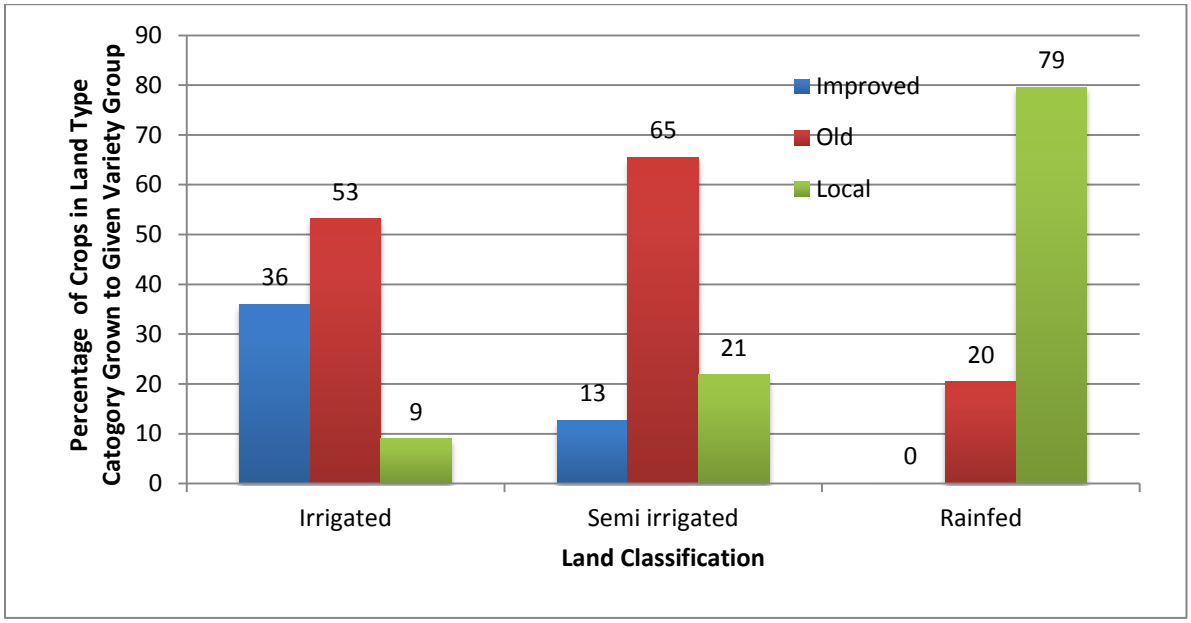
As yields from conservation plots and conventional plots are compared in future years, we expect to see CA plots maintain more stable yields even in lower moisture years and respond well under lower input conditions.

Contract Farmer Findings
The third population surveyed was a group of contract farmers whose production has been aggregated as quality grain for sale into higher value grain markets. RADP-N is looking for opportunities to enhance production for this group to deliver more efficiently against grain contracts. Nine contract farmers were selected at random who operate in Balkh province on irrigated land, with an average yield of 3,093 kg/ha.

Variety Utilization and Yields
The yield survey allowed for a range of analysis on agronomic practices in the project area. In summary, a pattern emerged that the dryer the environment, the less improved varieties were being grown, and the higher the frequency of local or improved varieties. The bar chart below

[2] Level of confidence: P<0.001 for impact of spraying on yields see 64

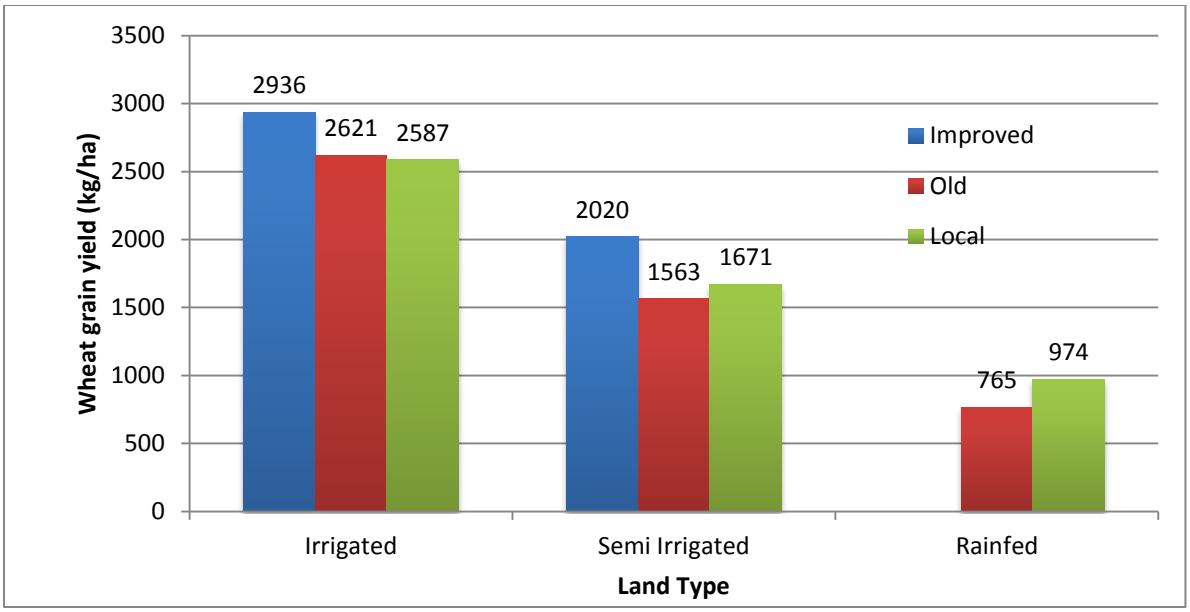
shows the findings from a yield assessment survey of 210 wheat fields in the north during year two and variety classification grown in three land types:



Improved varieties were seen performing better than the others in irrigated environments, and also in semi-irrigated environments. No farmers in the survey chose to grow improved varieties in rain-fed environments. In terms of performance, local varieties performed better relative to old varieties in drier environments. The chart below predicted yields showing variety groups grown on irrigated, semi irrigated, and rain fed land across northern Afghanistan[3], 210 crops were sampled from four targeted provinces.

RADP-N yield assessment activity 2015/16.[4]

[3] from Residual Maximum Likelihood (REML) model (random model: province + use of herbicide + use of fertilizers)
[4] Irrigated S.E.D 168.8; p=0.019; Semi Irrigated S.E.D 158.1, p=0.023; rain fed S.E.D 95.83; p=0.036:



Improved varieties were not used universally. They were planted only on 33% of irrigated land, and 13% on semi-irrigated land, so there may be significant potential for increasing productivity through more planting of improved varieties in the four targeted provinces.

Grants

Seed Business Development and Variety Selection

In the beginning of year two, RADP-N developed the SBD ToT training materials and subsequently conducted the SBD ToT training in Dehdadi district of Balkh for 25 participants, 16 trainers from the seven grantees[5], five DAIL extension workers, and four Afghanistan Agricultural Extension Project (AAEP II) staff from Baghlan, Balkh, Jawzjan, and Samangan provinces. During the opening ceremony of the ToT, Balkh DAIL Agricultural Affairs Extension Director spoke on the importance of seed selection in agriculture. RADP-N technical staff presented the grants process and procedures to the participants.

The SBD activity took place between January and August, utilizing seven grantees and involving 1,800 farmers and 90 owners of Participatory Varietal Selection (PVS) plots. Each of the 90 PVS plots were planted with 20 wheat varieties, and each plot received a seven kg bag of a single wheat variety and planted in field. As the season progressed, farmers gathered to discuss and evaluate the performance of each of 90 varieties.

The SBD activity is designed to address four needs.

- Lack of farmers' confidence in certified seed, which is sometimes adulterated in large distribution programs and is not always suited to their environments or preferences.
- The price of a 50 kg bag is too high for many farmers, inhibiting their willingness to experiment with different varieties of seed.
- Seed companies have almost exclusively sold seed to large distribution programs, rather than direct to farmers. The companies have not established an orientation toward the farmer as a customer, nor established the distribution networks to serve them.

[5] [redacted]

- Farmers have generally accessed seed via large scale distributions, which have given farmers no chance to evaluate varieties. Hence, farmers do not know the range of varieties available or the suitability of varieties to their environments.

The SBD activity held at different periods in the farm cycle during the 2nd and 3rd quarters. Twenty farmers were instructed in four technical areas at each of the 20 PVS plots.

SBD PVS plots cultivation in Iraghly village of Sheberghan district (Jawzjan), January 25.

Varietal Specification (Session 1)
RADP-N developed varietal specifications with participants listing characteristics that they value and negative traits they want to avoid, explained the PVS process, distributed a seven kg seed sample pack to each farmer, and recorded the variety received. Farmers discussed how to evaluate the performance of their own variety and the new sample. The participants agreed on a mother trial site where the group can see all varieties grown in one place.

Spring Emergence (Session 2)
The participants discussed their own varieties and recorded their preferred variety, which they will grow next to the sample seed. Each farmer was asked to compare their own variety with the sample received against each characteristic that they listed as important in session one. Not all new varieties performed better than farmer's regular varieties, so it was important to encourage honest discussion of variety performance.

Heading (Session 3)
Further comparisons was made against varietal specification as each group member reported on how their variety compared to the sample for each characteristic important to the group. The votes by members of the group on their favorite variety in the mother trial were recorded.

Post-Harvest Evaluation (Session 4)
The team discussed yields and other characteristics again, with each farmer reporting their preference. Farmers were asked what they plan to grow next year. Participants were asked to recall the name of the new variety and were encouraged to remember variety names.

The SBD activity was not a formal event, but a series of discussions in which farmers learn from instructors, but also discuss the merits of the technical instruction. These are informal events designed for farmers to evaluate alternatives in an unstructured but intentional manner. The activity also involved a mobile marketing campaign to facilitate seed companies in meeting with farmer groups and promoting their seed, giving a simple presentation on improved agronomy and seed, making sales, and establish and promote new outlets nearer to the farmer groups. The usual 50kg seed bags were available for sale as well as seven kg sampler packs. The table below defines the locations where SBD took place, as well as the number of villages, PVS owners, and farmers who participated.

SBD Project Locations, Beneficiary Targets, and Number of PVS Plots				
#	Province	District	Village and Beneficiary Description	PVS Descriptions

			Villages	PVS/Villages	Lead Farmer/ Mother PVS	Total of Mother PVS	Farmer Participants/ PVS Plot	Total Farmer Participants/ Village	Farmer/ Participants (Beneficiary)
1	Balkh	Balkh	5	3	1	15	20	60	300
2		Dehdadi	5			15			300
3	Samangan	Hazrat-e- Sultan	4			12			240
4	Jawzjan	Sheberghan	4			12			240
5	Baghlan	Pul-e-Khumri	8			24			480
6			4			12			240
Total			**30**	**3**	**1**	**90**	**20**	**60**	**1800**

Mobile Marketing of Seed

SBD consists of three components: cultivation of PVS plots, the packing of wheat varieties into seven kg (one seer) sample bags, and the sale of those sample bags to farmers that attend field days conducted at the PVS plots. The mobile marketing activity was conducted in January. This was the first time in Afghanistan that seed companies have provided farmers the opportunity to test several varieties for suitability on their own land. The seven kg packages allow a farmer a sufficient amount of seed to test the variety while keeping the expense of the experimentation at a manageable level compared to investing in a more costly 50 kg bag. The following table shows the completed mobile marketing result:

SBD improved wheat seed mobile marketing in Bagh-e-Shamal village of Pul-e-Khumri district (Baghlan), January 9.

#	Grantee	Working Area			PVS Plots		Mobile Marketing			7kg Bag sold
		Province	District	Villages	PVS Plots	Farmers	Sold Seed in kg	Farmers Bought Seed	Cost AFN	
1	[redacted]	Balkh	Dehdadi	5	15	315	1,400	46	[redacted]	200
2	[redacted]		Balkh	5	15	315	1,400	120	[redacted]	200
3	[redacted]	Samangan	Hazrat-e-Sultan	4	12	252	1,820	70	[redacted]	260
4	[redacted]	Baghlan	Pul-e-Khumri	4	12	252	2,464	216	[redacted]	352
5	[redacted]			4	12	252	1,820	260	[redacted]	260
6	[redacted]			4	12	252	1,848	260	[redacted]	264
7	[redacted]	Jawzjan	Sheberg	4	12	252	1,561	60	[redacted]	223

	[redacted]		han						
Total				**30**	**90**	**1,890**	**12,313**	**1,032**	**347,400**	**1,759**

Variety Selection

During the third field day farmers voted for their favorite variety. The results of the voting were shared with farmers during the fourth field day. Farmers had five votes and focused on higher yielding varieties; 72% voted for Mazar-99, and 64% voted for Moqavim-09. See the table below:

Variety Name and Number of Votes								
Varieties	**Seed Company Name**							**Total**
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
Lalmi-3	37	61	46	70	42	44	18	**318**
Moqavim-09	206	261	121	162	110	114	180	**1,154**
Chonta-1	120	53	46	145	46	112	113	**635**
PBW-154	35	36	29	47	23	11	18	**199**
Sheshambagh-08	22	69	19	28	31	44	19	**244**
Drukhshan-08	59	72	51	36	31	29	26	**304**
Zardana	11	27	45	7	57	48	53	**248**
Parva-2	146	131	52	10	26	82	225	**672**
Baghlan-09	61	53	103	147	127	89	43	**623**
Herat-99	13	32	14	16	46	28	25	**174**
Darulaman-07	123	121	18	17	121	32	105	**537**
Gul- 96	28	30	4	83	24	97	35	**301**
Mazar-99	146	253	68	151	378	141	172	**1,309**
Sulh-02	88	66	34	81	54	121	21	**465**
Ghori-96	40	129	165	58	47	154	64	**657**
Rana-96	115	36	65	57	30	24	47	**374**
Total	**1,250**	**1,430**	**880**	**1,115**	**1,205**	**1,170**	**1,164**	**8,214**

More important than the actual vote, it was apparent from the discussions that farmers realized the importance of improved varieties, cultivating, fertilizer application, and weed control. A total of 1,430 out of 1,800 farmers (79%) decided to change their local seed for improved varieties and asked the seed companies to provide the selected varieties in a timely manner for the upcoming planting season.

SBD PVS Plots second and third field day in Charshanbe village of Sheberghan district (Jawzjan).

Significance of the Activity

The importance of this interaction between the farmer and seed companies cannot be understated. One year ago, a number of seed companies were going out of business. Donors had ceased funding government distribution of seed, and the companies did not know how to market to farmers. The SBD activity has brought seed companies to farmers and introduced farmers to a number of certified seed varieties. Farmers have learned to evaluate the different varieties and to express

their expectations to the seed companies. Seed companies are learning how these varieties perform across diverse environments, and are better able to recommend their products. They also understand that farmers, at some scale, will pay for seed which performs well. Building a real market for seed is important to build a sustainable seed industry which can survive and meet the needs of farmers without donor support.

Weed Control

Under this activity farmers are trained in both mechanical and chemical methods of weed control, the use of personal protective equipment, and the safe storage and handling of herbicides. Farmers in northern Afghanistan lose up to 30% of their wheat to weeds. They use a range of control methods, but when herbicides are used, they are often poorly applied leading to human and environmental health risks and agronomic under-performance. Problems with chemical control include the timing of application of herbicides on weeds, spraying rates, types of herbicides, and equipment. It is common for farmers to wait until weeds mature before they are sprayed, which is too late to prevent negative impact on yields. Late spraying means that weeds are too strong to kill which can have a detrimental effect on yield.

The weed control activity held between February and September was implemented through three grantees reaching 10,008 farmers and 24 Ag Depots selling high-quality backpack sprayers. The implementation was designed in two parts. The first included three training lessons on integrated weed management in wheat. The first lesson was about mechanical weed control, and the second and third lessons were about chemical weed control. The third lesson also included practical field work. The 10,008 farmers were trained in 834 groups of twelve. Each group were provided a high-quality backpack sprayer with boom and herbicide-specific nozzles, personal protective equipment, and herbicides for practice spraying.

The project staff provided practical training to the farmers on how to use backpack sprayers with double nozzles, and to apply herbicides at the proper rate and in the proper season. Trainers applied herbicides in sample plots to practice.

The second part of the activity consisted of monitoring, yield survey, and impact assessment. In total, 1,040 crop cuts were collected across the four project provinces, detailed agronomic data was recorded for each sample site, and fields were measured. The yield assessment activity is discussed in detail in the technology and mechanization section of this report.

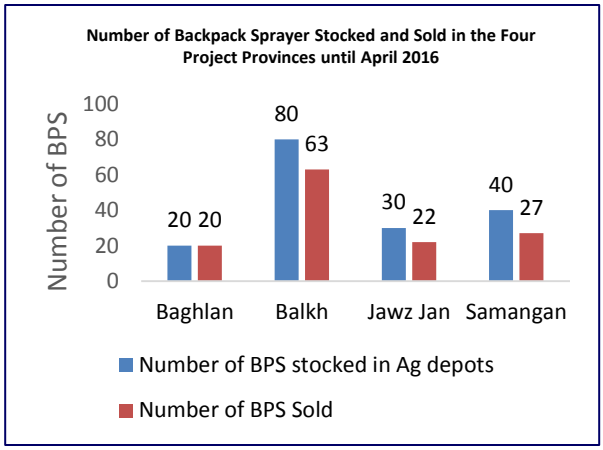
RADP-N sent SMS to the year 1 and 2 beneficiaries at appropriate times for both grass-type and broadleaf-type weed control as detailed in the table below. The content of the SMSs were approved by RADP-N and sent to the beneficiaries under the existing SMS marketing program. The messages covered mechanical weed control, health and safety, and timing of interventions. The wheat team recorded GPS[6] coordinates where training of farmers took place, except in insecure locations.

Number of Farmers Received SMS in 2016		
Province	**Farmers Received SMS from Year 1 Weed Control Beneficiaries**	**Farmers Received SMS From Year 2 Weed Control Beneficiaries**
Balkh	600	3,604

[6] GPS coordinates in Aqcha district, Khanomia Turkmania village of Faizabad district of Jawzjan province and Khushal Abad Afghania village of Dawlat Abad district were not recorded due to instability.

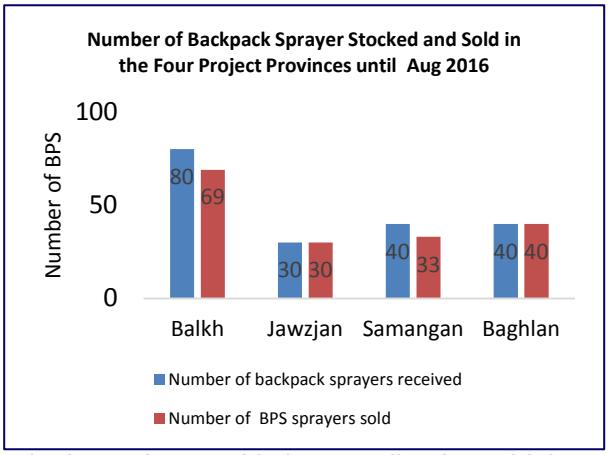
Samangan	532	2,023
Jawzjan	461	1,480
Baghlan	583	1,811
Total	**2,176**	**8,918**

Backpack Sprayer Stocked in Ag Depots
Through the weed control and IPM grant, RADP-N contributed 80% of the cost for 10 backpack sprayers and Personal Protective Equipment (PPE) kits to at least one Ag Depot in each of the of 17 project districts to promote the sales of these quality inputs. The technical team conducted two follow up surveys of Ag Depots to determine sales from the stock of 170 backpack sprayers and evaluate the demand for sprayers and herbicides.



The first survey showed that 100%, 79%, 73%, and 68% of the backpack sprayers and PPE kits were sold in Baghlan, Balkh, Jawzjan, and Samangan provinces, respectively, which is equivalent to 78% for all four provinces. Further, 58% of the Ag Depot owners reported an increase in sales of herbicides in 2016 compared to 2015, while 33% reported reduction in sales, and 8% reported no change. Herbicide sales increase averaged 6%, 51%, 65%, and 54% in Baghlan, Balkh, Jawzjan, and Samangan provinces, respectively.

The second survey showed sales had progressed to 100%, 100%, 86%, and 83% sold in Baghlan, Jawzjan, Balkh and Samangan provinces, respectively. Further, 58% of the Ag Depot owners reported an increase in sales of herbicide over the previous year, 33% reported a reduction in sales, and 8% reported no change.



In addition, 54% of the Ag Depots reported that farmers changed the timing of their herbicide purchases which is an indication of partial adoption of the weed control timing recommendations. A problem associated with chemical weed control is late application which results in reduced yield. RADP-N has recommended that famers finish spraying before elongation of the wheat. Ag Depot owners reported that farmers started buying herbicides in early to mid-March, compared to previous seasons where farmers purchased in April or late March.

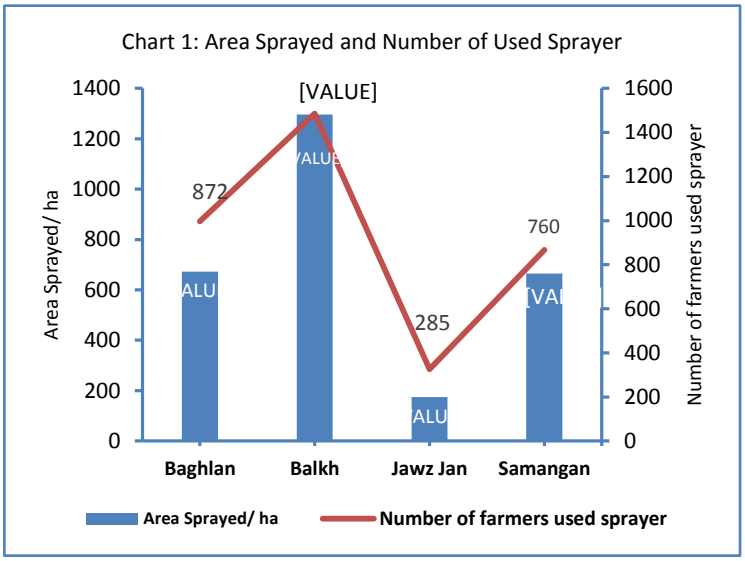
Though the activity started late this year, an encouraging number of sprayers stocked by the Ag Depots were sold. The critical importance of timing will be factored into planning for next season's weed control.

Weed Control Female Farmers Training Follow Up
RADP-N has challenged the norm of excluding women from mainstream agricultural trainings by piloting a weed control training exclusively for women. Eight female farmer groups were trained in Balkh province. An important part of this training was about safe and effective use of herbicides and backpack sprayers. The team wanted to work on the principle of inclusion and providing access, opportunity, and to learn by doing.

In following up with 33 female and three male farmers in three villages where the weed control training took place, the team did not find examples of women using backpack sprayers, but we found a strong sense of empowerment of the women and a real economic value to their households. Trainees have proven effective in impacting household weed control practices, and men have been receptive to their wives' contributions. These trainings have benefited the women directly, as well as their families and livelihoods. Herbicides are commonly stored in the home, but these women are now taking necessary measures to ensure that chemicals are stored out of the reach of children. They understand the need for proper handling and storing of chemicals and the use of PPE.

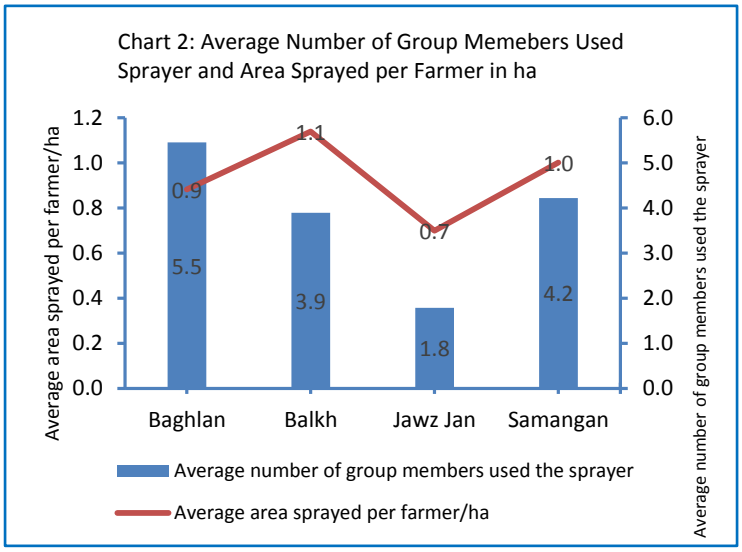
[redacted], a female was trained by the weed control training in Shir Abad village of Dehdadi district. [redacted] daughter is married to a man employed by [redacted] to spray weeds. He wore his normal clothing, when spraying and used no PPE. He returned each day to his home without changing the herbicide-contaminated clothes. The trainee's daughter heard from her mother the importance of proper PPE and washing after spraying. The daughter took the message to her husband. The employee went back to work and refused to spray until [redacted] provided proper PPE. Now the family feels safer that they are able maintain their good health.

RADP-N will adjust the approach to training men and women on the basis of these findings. Women should continue to be involved in training like this where they are empowered with knowledge that improves their lives, protects their families, and enables them to contribute to the work and livelihoods of their families.



Backpack Sprayer Usage
During the weed control training of farmers, each group of farmers was provided a backpack sprayer, PPE, and a log book to record the use of the backpack sprayer. Each group leader was trained in record keeping. All 834 backpack sprayer log books were collected from the group leaders for analysis. In total, 3,217 farmers used the sprayers for herbicide application on wheat crops at a larger scale and for pesticide application on several other crops and orchards at smaller scale. In total, 3,208 ha of wheat were sprayed as shown in the bar chart. Only four farmers in each group of 12 members recorded using the sprayer as detailed in the other bar chart.

The records suggest that an average of 0.9 ha per user was sprayed. In a similar training implemented during IDEA-NEW in 2012/13, nine in each group of 12 farmers used the backpack sprayer, and an additional six to seven farmers not in the original group also used it. In the year one weed control training, which was three weeks earlier than the year two training, 80% used the technology. This year's later training is consistent with the lower uptake rate of 30%.



Kitchen Gardening

Under a grant to Global Partners (GP), RADP-N's hygiene and nutrition (H&N) activity beneficiaries who have land and water are being offered the opportunity to receive hands-on training in establishing their own kitchen gardens. They are being empowered to implement the knowledge gained to grow nutritious food that will provide dietary diversity for their families. The kitchen gardening activity, following from the H&N training activity, provides a means for women to employ key nutrition principles.

The kitchen gardening activity commenced in June, with 25 local staff receiving ToT training on how to choose a garden location, prepare the soil, and plant nine different types of vegetable seeds. Following the ToT, we conducted surveys to select beneficiaries who had attended the H&N training, had adequate land, and access to water to establish their own kitchen gardens. Training sessions for the beneficiaries commenced in the beginning of quarter four with the distribution of a kitchen gardening kit containing a shovel, rake, and watering can in the first session. Seeds were distributed to the participants during the lesson on planting.

During practical session in Joy Zhowandon village, Aybak district (Samangan), July 10.

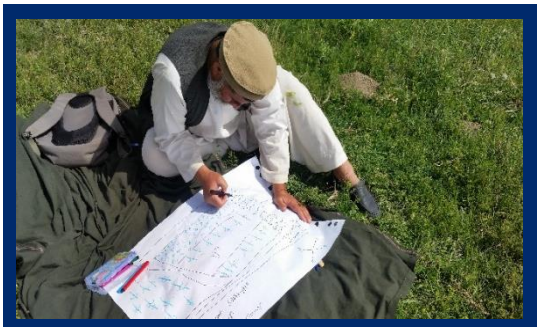
Beginning in July, eight practical, hands-on kitchen gardening lessons were shown how to establish their gardens; Balkh province included 349 beneficiaries, 409 from Baghlan, 374 from Jawzjan, and 448 from Samangan. A total of 1,580 beneficiaries are being trained in the first round of the activity that will be completed in November 2016. RADP-N has received affirming feedback from beneficiaries. [redacted] in Baghlan province is very poor and has six children. She said she has been able to sell some of her vegetables to buy notebooks and pens for her children to use at school. She said she also been able to feed her family the vegetables she has grown.

Farmer Conservation Agriculture

CA is a systems change which improves soil health and physical properties resulting in improved water use efficiency and nutrient cycling. CA reduces land degradation and destruction of the soil structure, minimizes disruption of the organisms that live in the soil and builds soil health resulting in a more sustainable, profitable, and resilient production system. A full program of CA uses the three core principles of minimum tillage, soil cover, and extended crop rotations.

Agriculturalists developing and practicing facilitation skills in participatory analytical techniques

Farmer led CA is a multi-year activity to support 44 lead farmers to develop CA on their farms, who in turn, each build the capacity of 20 farmers. Hence, there are 924 participants from 14 districts in the four project provinces. Since this is new to Afghanistan, an important aspect is the in-service training that RADP-N is delivering for the grantee's agricultural staff, all of whom are graduates of Afghan university agricultural departments. They have responded well to eight days of formal training and further in field support.



A lead farmer drawing map, and working on a participatory budget in evaluating their current systems and to develop a conversion plan for the development of CA on their farms

Each of the 44 lead farmers are compiling a detailed farm management handbook which the grantee agricultural staff use to walk them through an in-depth analysis of their current systems, develop a management plan to implement the transition to CA, and develop a monitoring plan to track the planned change and inform management.

All 44 lead farmers have completed mapping and participatory budgeting exercises which are part of the in-depth physical and financial analysis. All of them have developed the management and monitoring plans which are recorded in their management handbooks and show current conventional and planned conservation approaches to the three key principles:

- Tillage
- Crop rotation
- Soil cover

One early field activity has been LLL. Most lead farmers have chosen this as a good time to hold field days and discuss CA with their 20 participating farmers. So far, 29 plots have been levelled, 14 of which took place during field days with a total of 280 farmers participating. Monitoring activities, implemented by farmers with support from the implementing partner and RADP-N, track system health indicators and include soil fertility and physical properties such as soil hardness and active carbon, weed growth, and more typical financial aspects.

The 44 lead farmers have been very responsive to the process, and found it highly educational. Some have hung their maps on walls and talk about them with enthusiasm, and many talk with confidence about costs of production, for example, highlighting high cost elements which they had not been able to before the detailed analysis. When leading field days, the 44 farmers have been able to present the CA principles clearly to their neighbors with confidence and enthusiasm. Participants have also begun to see the benefits of laser levelled land.

[redacted] *using a straw mulch in an extended wheat rotation pules crop – Posht-e-Bagh village of Dehdadi district (Balkh), 8 August.*

A farmer in Posht-e-Bagh village of Dehdadi district Balkh province reports that before leveling it would take him an hour to irrigate one jerib, and now it takes just 30 minutes. This has created demand for leveling services in area. This story is being repeated, and three CA participants have said they want to buy a subsidized LLL unit to operate as contractors.

CA Demo plot, LLL photos Shahr-e- Qadeem Village of Aybak district (Samangan) before and after leveling on July 21.

Contract Harvesting

For the second year, RADP-N supported owners of two wheeled tractors (2WT) with reaping attachments to offer reaping services to wheat farmers. In the year one, RADP-N identified 30 tractor owners and six mechanic shops. In year two, RADP-N increased the number six fold to 185 tractors and 19 mechanics. When done by hand, reaping frequently represents more than 30% of the total cost of wheat production. Previous donor projects which have made reapers available to farmers, have demonstrated reduced production costs to less than 10% of total costs. In year one, 366 ha of wheat was harvested with reapers.

In year two, using asset listings from the previous donor projects and field surveys by provincial agricultural teams, RADP-N sought out 2WT owners whose tractors were idle and had fallen into disrepair. After also identifying mechanic shops which were capable of acting as maintenance sites, RADP-N field staff calculated the necessary spare parts for repairing 185 idle tractors and reapers. RADP-N provided a maintenance package of engine oil, gear oil, grease, diesel filter, small lubrication oil pump, two rakes with handles, and a V-belt for all 185 contractors, and delivered those packages to the 19 mechanic shops. The units were repaired and made serviceable.

Working through two grantees in the four provinces, RADP-N trained the 185 tractor owners to reap and to negotiate service agreements with farmers. The grantees then linked each tractor owner to six farmers for whom they reaped three jeribs each. After that practical experience, the tractor owner was expected to market his services to other farmers. The grantees and RADP-N team noticed a remarkable level of farmer interest in contract harvesting in Jawzjan, where the target was 1,440 jeribs. The 2WT operators surpassed that target by reaping 11,125 jeribs. A similar effect was reported in Baghlan where the reaping target was 270 jeribs, and the tractor operators reaped 392 jeribs. The total target for the activity was 3,330 jeribs reaped by the 185 2WT operators. See target, achievement, and analysis details in the table below:

Number of Jeribs Reaped in Wheat Value Chain Project Area				
Province	**2WT Operators**	**Farmers Contracted**	**Jeribs Reaped**	**Generated Income in AFN**
Baghlan	15	94	392	191,400
Balkh	60	466	3,547	1,695,035
Jawzjan	80	537	11,124.5	3,617,855
Samangan	30	189	841.5	381,800
Total	**185**	**1,286**	**15,905**	**5,886,090**

While RADP-N estimated that farmers would be willing to pay AFN 300 per jerib to the contractors, farmer demand increased the price per jerib to AFN 439, demonstrating the value that this activity creates for the farmer. Overall, operators generated AFN 5,886,090 in revenue, while farmers saved labor costs of about AFN 9 million. Some of the operators provided binding services by hiring day labor to follow behind their reaper. By reaping their wheat field, the farmers saved time and reduced the cost of harvest. As a result, some farmers in irrigated areas had time to replant their fields with second crops. After witnessing the success of the 2WTs, some of the farmers in Baghlan and Balkh provinces showed interest in buying subsidized 2WTs, which is being addressed in the upcoming SIMP activity. The activity's economic benefit is shown in the table below:

2WT operators reaping and labors binding the reaped wheat in Sofy Qala village of Sheberghan district (Jawzjan)

Target, Achievement, and Analysis				
Target & Achievement	**Target**	**Achievement**	**Over Target**	**% Over Target**
Number of Farmers Clients	1,110	1,286	176	15.9%
Number of Jerib Reaped	3,330	15,905	12,575	377.6%
Amount Generated in AFN	999,000	5,886,090	4,887,090	489.2%
Number of Hours Saved	21,645	103,383	81,738	377.6%
Number of Labor (man-days) Saved	2,706	12,923	10,217	377.6%
Amount of Labor Cost Saved in AFN	1,893,938	9,045,969	7,152,031	377.6%
Estimated Average Cost by 2WT/Jerib in AFN	300	439	139	46.3%

Demonstrating a Binder Reaper

In an effort to introduce new agricultural technologies, RADP-N in quarter three facilitated the demonstration of binder reapers in two field days conducted in each of the four project provinces. The grantee gathered interested farmers, explained the reaper binder's operation, and reaped and bound three jeribs of land. Some farmers expressed interest in buying a binder reaper. They mentioned that the binder reaper is suitable for large fields, and that the work quality was good. The table below indicates the binder reapers field day location and number of participants:

Binder Reaping Activity Under Contract Harvesting					
#	Date	Province	District	Village	Participants
1	06/16/2016	Baghlan	Pul-e-Khumri	Itifaq	40
2	06/19/2016			Khan Abad	40
3	06/27/2016	Balkh	Dehdadi	Tokhta	40
4	06/30/2016		Nahr-e-Shahi	Haji Habib Village	40
5	07/03/2016	Jawzjan	Sheberghan	Yaka Bagh	40
6				Sufi Qala	33
7	06/27/2016	Samangan	Aybak	Joy Zhowandon	40
8	06/28/2016		Hazrat-e-Sultan	Qush Tepa	40
Total					**313**

High Value Crop Value Chains

Direct Implementation

Sell More For More (SMFM)

RADP-N, through the SMFM activity, supported and improved the management capacity and leadership of 32 farmer organizations from the six project provinces. The team developed the SMFM modules to train farmer organizations members on how to establish an effective administrative and financial management system. The training helped the organizations develop new marketing strategies and provide effective services to members. RADP-N trained 159 board members from 32 farmer organizations from across 20 districts, and six staff from cooperative development departments of provincial DAILs in December and January. The training agenda covered 10 full days separated into two different segments one month apart. The SMFM training was conducted by seven pairs of certified trainers, who, along with eight HVC staff received a 7-day SMFM ToT course. The training helped at least 14 farmer organizations to develop business plans that lead to their registration with the relevant GIRoA licensing bodies, among which nine have completed their registration with MAIL as agricultural cooperatives and five others have completed their registration with Ministry of Justice (MoJ) as agricultural associations.

One participating organization, [redacted], has leased a packing house from MAIL upon completion of its registration under the revised Cooperative Law. The packing house has helped the cooperative to market quality agricultural products and strengthen its aggregate sales capacity. [redacted], the chairman of the cooperative who attended the RADP-N SMFM training said, "The lessons learned through the SMFM course that I attended earlier this year was the main motivation for us to lease the pack house. Though running a pack house is risky for us because we do not have experience utilizing such facilities for the benefits of our members and their produce, we believe the continuous RADP-N support make it a success". RADP-N further supported these farmer organizations through engaging 2,519 members in production and PHH interventions across the three HVC value chains

(grapes/raisins, melons and dried fruits/nuts). The table shows participants' details below:

Famer Organizations and DAIL Staff Attended SMFM Direct Training					
#	Farmer Organization and DAIL	Province	District	Participants	DAIL Staff
1	[redacted]	Badakhshan	Faizabad	5	1
2	[redacted]			4	
3	[redacted]		Baharak	5	
4	[redacted]			5	
5	[redacted]		Kishem	5	
6	[redacted]			5	
7	[redacted]	Baghlan	Baghlan-e-Jadeed	5	1
8	[redacted]		Dahana-e-Ghuri	5	
9	[redacted]		Baghlan-e-Jadeed	5	
10	[redacted]		Pul-e-Khumri	5	
11	[redacted]			5	
12	[redacted]	Balkh	Dawlatabad	5	1
13	[redacted]		Khulm	5	
14	[redacted]		Balkh	5	
15	[redacted]		Chimtal	5	
16	[redacted]			5	
17	[redacted]		Nahr-e-Shahi	5	
18	[redacted]	Jawzjan	Sheberghan	5	1
19	[redacted]		Sheberghan	5	
20	[redacted]		Aqcha	5	
21	[redacted]		Aqcha	5	
22	[redacted]		Faizabad	5	
23	[redacted]	Kunduz	Chahar Dara	5	1
24	[redacted]		Kunduz	5	
25	[redacted]		Kunduz	5	
26	[redacted]		Ali Abad	5	
27	[redacted]		Khan Abad	5	
28	[redacted]	Samangan	Feroz Nakhcheer	5	1
29	[redacted]		Aybak	5	
30	[redacted]		Khuram Wa Sarbagh	5	
31	[redacted]		Aybak	5	
32	[redacted]		Feroz Nakhcheer	5	
Total				**159**	**6**

The list below shows the percentage of SMFM training beneficiaries that have adopted key aspects of the training in their business activities:

- 38% have prepared customer lists
- 50% have recorded product prices and volumes sold to each customer for 2015-2016 harvest
- 28% have developed a sample buyers contract
- 91% have estimated their production capacity
- 63% have identified member needs including inputs, production, PHH, storage, and transportation
- 69% have recorded their past year's losses and the causes
- 34% have taken steps to reduce losses for the current year
- 56% have obtained record keeping books
- 59% have completed their internal control checklists
- 47% have conducted interviews with buyers after the SMFM training
- 44% have registered their organizations - 5 with MoJ and 9 with MAIL
- 97% are interested in PHH training
- 100% are interested in business plan development training
- 100% are interested in proposal writing training
- 100% are interested in International Standard Organization (ISO) certification
- 88% are interested in water and irrigation management
- 44% requested computer training
- 38% requested IPM training
- 35% requested new technology training

During the SMFM Direct Training, Kunduz, Jan 03, 2016.

Buyers visiting Afghanistan Pavilion Kazakhistan November 7, 2016

Late in the year, the RADP-N team measured the impact of the SMFM training on the farmer organizations through a tool called M4 (Management, Money, Membership and Market). The comparative results of the two surveys conducted, one pre-SMFM training and another post-SMFM training, revealed the following changes in the way these farmer organizations operate:

- Membership, considering recruitment, retention, annual general meeting, agenda, feedback, outreach, involvement, and fees and services for members at risk showed 14% improvement.
- Marketing, considering participation, buyers, quality, storage, marketing plan, personnel and marketing experience, showed 28% improvement.

- Money, considering accounting staff, accounting procedures, strength of audit, profit and loss statement, profitability and bank account, cash flow, and balance sheet showed 18% improvement.
- Management, considering legal status, bylaws, Board of Directors election, supervisory committee, business plan, manager, standard operating procedures, and record keeping showed 15% improvement.

In the middle of the year, the team diagnosed upgrading needs for each organization and those needing additional support to start or complete their registration with the relevant GIRoA entities. This led to the cooperative registration and development activity that will be implemented with the International Labor Organization's (ILO) Road to Job project in the first quarter of year three. The activity will help unregistered farmer groups to develop business concepts, generate business plans, and register as a formal entity with MAIL. RADP-N attended the national conference on cooperative development held by MAIL in Kabul in September. The team presented the challenges for cooperatives and RADP-N's intervention to support improved cooperative management and leadership.

International Trade Show

In year two, RADP-N continued to support agribusinesses to reach new international and regional markets. This assistance included technical advice on how to prepare for a show and how to do business with large international buyers as well as financial assistance that covered 30% of the total cost for participation in the trade shows. WorldFood Kazakhstan was an ideal place for the agribusinesses to showcase Afghan agricultural products as it drew international buyers from around the world, in particular from European countries such as France and Germany. RADP-N co-sponsored 12 agribusinesses to attend this show in November. The new sales as a result of this show exceeded $490,000. RADP-N acknowledges that more work needs to be done on international food safety standards which will encourage more value added processing in Afghanistan and the opportunity to reach retail buyers in Europe.

Agribusinesses Sales Recorded, $US			
Company Name	**Quarter 1**	**Quarter 2**	**Total Sales**
[redacted]	[redacted]		[redacted]
[redacted]	[redacted]		[redacted]
[redacted]		[redacted]	[redacted]
Total	**260,839**	**233,200**	**494,039**

National Trade Shows

RADP-N sponsored the participation of nine northern agribusinesses to attend the Kabul International Ag Fair in October. Good products sales resulted from their participation. The team followed up with the agribusinesses to capture sales data and provide technical assistance during November and December. The table shows the agribusiness that participated in the show:

Agribusinesses Participating in the Kabul Ag Fair			
#	**Company Name**	**Location**	**# of Participants**
1	[redacted]	Mazar-e-Sharif	1
2	[redacted]		1
3	[redacted]		1
4	[redacted]		1

5	[redacted]		1
6	[redacted]		1
7	[redacted]	Sheberghan	1
8	[redacted]	Kunduz	1
9	[redacted]	Baghlan	1
Total			**9**

RADP-N participated in another Kabul Ag Fair held by MAIL in March. The team conducted a market intelligent exercise during this show and collected information from actors inside and outside the fairground. To date, sales directly linked to RADP-N's trade show facilitation activity exceeds one million dollars. This includes the sales of raisins, almonds, pistachios, and walnuts to international buyers in Turkey, India, and the Netherlands.

Stone Fruits and Nuts PHH Trainings
RADP-N's International PHH specialist conducted two PHH training sessions for 49 lead farmers, cooperative leaders, and traders from the six target provinces in two separate trainings (21 on stone fruits and 28 on nuts). The training created a good learning environment as farmers heard from traders about quality standards and market demand.

Food Safety Training
In year two, RADP-N hired an international food safety expert to help proficient agribusinesses meet international food safety standards and to become certified Hazard Analysis and Critical Control Points (HACCP) auditors. The team conducted a full day food safety and HACCP introductory training for 24 value chain actors; processors, exporters, cold storage owners, traders, laboratory owners, and DAIL staff. The participants learned about the transmission of food borne bacteria and the illnesses caused by contamination. Trainees were introduced to the role of ISO in quality assurance, the requirements for Global Good Agriculture Practices (GAP) certification, and the HACCP method of process control.

Grants

Improved Orchard Management for Stone Fruits and Nuts
RADP-N focused on supporting orchard owners with key aspects of orchard management practices including on-time pruning of trees and simple preventative IPM techniques that are crucial to elimination of common pests and diseases thus resulting in increased productivity. A total of 2,979 farmers including 47 lead farmers were supported to conduct proper pruning and spraying of stone fruits and nuts trees across 22 districts of the six target provinces in March and April. The farmers received short-term training followed by on-the-job extension services. The training introduced proper pruning with appropriate pruning tools, as well as simple key IPM practices crucial to increasing yield and quality. Liming and pruning have been widely adopted.

The activity was implemented through six grants to three agricultural services providers. The [redacted] implemented the activity in Balkh and Jawzjan, and [redacted] implemented in Kunduz province. [redacted] implemented the activity in Badakhshan, Baghlan, and Samangan provinces. [redacted] reported that they increased their membership by 900 new farmers as a result of the outreach opportunity provided under this grant. The grantees' trainers attended a ToT facilitated by RADP-N. Six DAIL staff, one from each of the six provincial DAILs, attended the ToT. Through these grants, RADP-N

strengthened the role of private agricultural services and input providers/suppliers in the farming community.

[redacted] a beneficiary from Aliabad district of Kunduz province who brought his almonds to the Kunduz Almond Market said. “I am very happy from RADP-N for teaching me the right pruning and simple pest control techniques. There is over 50% increase in the yield of my almond trees this year.”

Almonds arrived at the Kunduz Almond Market. Kunduz (Kunduz) August.

Inputs provided to 47 lead farmers included a pruning shears, a lopper, a power sprayer set, three meters ladder, and a scale. A total of 250 farmer groups attended the training of farmers and each group received a set of pruning tools consisting of a pruning shears, a lopper, and a pruning saw.

The table shows the details of beneficiaries per district below:

Improved Orchard Management Training Participants			
#	**Province**	**District**	**# of Trained Farmers**
1	Badakhshan	Baharak	178
2		Faizabad	71
3		Kishem	178
4		Yaftal-e-Sufla	71
5	Baghlan	Baghlan-e-Jadeed	240
6		Pul-e-Khumri	225
7	Balkh	Balkh	84
8		Chimtal	84
9		Dawlatabad	84
10		Dehdadi	84
11		Khulm	84
12		Nahr-e-Shahi	84
13	Jawzjan	Aqcha	168
14		Faizabad	168
15		Sheberghan	168
16	Kunduz	Aliabad	132
17		Chahar Dara	120
18		Khanabad	132
19		Kunduz	120
20	Samangan	Aybak	216
21		Hazrat-e-Sultan	216
22		Khuram Wa Sarbagh	72
Total			**2,979**

Grapevine Trellising, Improved Vineyard Management, and PHH

Building on the groundwork laid in year one, RADP-N trellised 125 jeribs of vineyards using the T (19 ha) and I (6 ha) trellising systems in 17 districts of five target provinces. The approach allowed the farmers to apply for 0.5 or 1 jerib of trellising inputs and installation support from

RADP-N. Farmers contributed 20% of the cost. A total of 140 farmers, including 8 women farmers, received trellising technology support (110* 1 jerib each and 30*0.5 jerib each = 125 jeribs).

The trellising technology was promoted with a three-phase training program for 4,859 farmers, including 140 lead farmers and 160 female farmers which addressed winter pruning and application of wettable sulfur, canopy management, and PHH trainings. The training was followed by on-the-job practical support to lead farmers and through lead farmers to other farmers. The first training on winter pruning was implemented in March, the second on canopy management and summer pruning was implemented in May, and the third training was implemented in July. The trainees were organized in groups of up 20 farmers per each of the 250 groups. Key inputs[7] were distributed to each group and its associated lead farmers.

The team shows a lead farmer how to install a proper trellising structure at a vineyard, Baghlan-e-Jadeed (Baghlan) April 25.

The activity was implemented through grants to two agricultural services providers: [redacted] and the [redacted]. The RADP-N team developed the training materials for all three seasonal trainings, and the T and I trellis designs, and conducted four different ToTs to the grantees' implementation teams as well as eight RADP-N staff. The first ToT on T and I trellis installation was attended by 25 grantee staff, and 5 DAIL staff. The other three ToTs on winter pruning, canopy management, and PHH were each attended by 43 staff members from the grantees. The grantees' staff then replicated the trainings to farmers and lead farmers with the close supervision and guidance of the RADP-N HVC team.

Melon Production Upgrades

To promote melon seedling production in controlled environments, such as cold frames, in year two the RADP-N technical team used a holistic approach to train farmers on melon fly control and melon PHH. The team supported the establishment of 100 melon demo plots by 100 lead farmers in 19 districts of all six project provinces. The demo plots were used to demonstrate four melon fly control practices including three mechanical methods (bagging, plastic mulching and melon seedling) and one chemical method (deltamethrine using backpack sprayers). The melon fly IPM training was intended for 5,000 farmers as was the melon PHH training. The two trainings targeted the same farmers in two different stages of growing. Melon fly IPM was conducted in May when the melons were at their fifth week of growth and the PHH training was conducted in July, the harvest time for melons. Growing melons using the seedlings grown in a controlled environment was very well received by farmers, not only for being a melon fly-resistant method of cultivation, but also for ensuring higher germination rates and healthier plants. A total of 300 women learned the melon seedling production technology and produced over 25,000 melon seedlings that were transplanted in 100 melon demo plots.

[7] Each group received the following package of inputs (one backpack sprayer, one kg of wettable sulfur, one pair pruning shears and one pair harvesting shears).

Optimal results were obtained from the melon demo plots, as there was a 20% increase in productivity of melons and a 40% decrease in the cost of production compared to melon plots grown using common practices by farmers. The common practices in melon cultivation used by farmers are unsafe because farmers use toxic chemicals in high doses that are not advisable. The project demonstrated an integrated pest management approach with more focus on three mechanical approaches all of which proved to be more efficient than the farmers' current methods.

The melon production upgrades were implemented through four grant agreements with two agricultural service providers - [redacted], and [redacted]. The RADP-N team developed the training materials both for melon fly IPM and melon PHH and conducted ToTs for grantee teams and prepared them to replicate the trainings to farmers and lead farmers in the field.

Promoting New Grape and Almond Varieties

In the reporting year, RADP-N supported the grantee [redacted] to promote two new varieties of almond (Nonparel and Carmel) and three new varieties of grape (Shindokhani, Taifi and Red Globe). Through the reporting period, 30 jeribs of new almond varieties and 40 jeribs of new grape varieties were planted. Due to unavailability of good Red Globe vine stock, it was only planted in two nurseries for propagation of rooted cuttings to be made available for the 2017 planting season. The new varieties have been selected based on their high market demand and longer shelf life for grapes and late-flowering characteristic for almonds. The project demonstrated the different growth characteristics of these new varieties for 660 farmers from Balkh, Jawzjan, and Samangan provinces through seven field days conducted at the [redacted] located at Balkh DAIL's research farm in Dehdadi district.

In August, the RADP-N technical team conducted a field inspection to the 40 grape vineyards and 30 almond orchards planted in March in Balkh, Jawzjan, and Samangan provinces. The inspection aimed to see the current growing condition of the newly planted saplings and vines. The inspection reported 50% of almond saplings and 10% of grape vines were dried. The causes for the high losses were identified as due to poor management[8], which resulted in the termination of the grant agreement.

Land preparation for planting new varieties of grapes, Sheberghan (Jawzjan) on March 21.

The RADP-N team will keep advising and following up with the farmers who planted new orchards and vineyards to prevent further losses. Using simple techniques that include mulch management and weed control, the farmers have been able to stop further losses. These orchards will receive additional assistance as per the year three work plan.

[8] Problems included: 1. Insufficient follow-up and technical assistance to the beneficiaries. 2. Poor selection of suitable land for the establishment of nurseries. 3. Failure to distribute animal manure to beneficiaries.

Short Message Service (SMS) Marketing

To establish direct and targeted communications between actors along the HVC supply chains, RADP-N, in year two, continued to support three input wholesalers operating in Balkh, Jawzjan, and Samangan provinces with new innovative means of communication with their customers. The SMS marketing grants helped the input suppliers to send over 290,000 agricultural messages to 6,837 farmers allowing them to develop a good working relationship with existing and potential new buyers for their products. The grantees experienced an average 19% increase in sales following the dissemination of the SMSs. A survey of the SMS recipients will be conducted to further evaluate the impact of the SMS marketing on the farmers. The result of this survey will inform the next phase of the SMS marketing activity that will be implemented in peri-urban areas in year three. The table below shows the sales results per grantee:

Sales Record of SMS Marketing Grantees in AFN		
Agribusiness Name	**Total Sales**	**Increase Sales**
[redacted]	[redacted]	13%
[redacted]	[redacted]	10%
[redacted]	[redacted]	34%
Total	**5,898,804**	**19%**

[redacted], the owner of [redacted] said, "SMS marketing has changed the way our business operates. It has created a simple communication interface with our customers. We have experienced an over 30% increase in sales which is associated with SMS marketing."

In the reporting period, the grantees reported sending 37,555 extra messages to 7,996 farmers in addition to the RADP-N supported messages. This shows the interest of the grantee in creating linkages with farmers and retailers and furthermore demonstrates their interest in this form of marketing.

Live Radio Show

The live radio shows have proven to be an effective marketing tool for input suppliers to reach out and increase their customer base. It also serves as an innovative means of extension to farmers especially when the show is interactive and the farmers have the option to connect to the show anchor and host. RADP-N strengthened the privatized extension services through supporting five input suppliers[9] to broadcast weekly live radio shows in all the targeted districts of the six project provinces. A total of 156 weekly live radio shows were aired, featuring 26 different topics on good agricultural practices, PHH and marketing of the RADP-N target HVC value chains. Each radio show was assigned a specialist on the topic of the day and farmers had the opportunity to ask questions of the specialist on the specific topics. The grantees have reported up to a 20% increase in sales and the opening of new outlets as a result of the live radio shows. The activity was implemented through six grants to five input wholesalers. The grants supported the input wholesalers to reach out and increase their customer base. The weekly live radio shows commenced in March and were aired through August. These shows were broadcasted parallel to physical demonstrations and trainings in the field on melon fly IPM, PHH, orchard management, and grapevine trellising, pruning, and disease control. Please see the table below for further details:

[9] [redacted]

Company Name	Baseline Sales in AFN (January to September 2015)	Increase Sales in AFN (January to September 2016	Incremental Sales in AFN	Incremental Sales in %
[redacted]	[redacted]	[redacted]	[redacted]	24%
[redacted]	[redacted]	[redacted]	[redacted]	5%
[redacted]	[redacted]	[redacted]	[redacted]	6%
[redacted]	[redacted]	[redacted]	[redacted]	17%
[redacted]	[redacted]	[redacted]	[redacted]	19%

Solar Irrigation Pump Technology

RADP-N installed 20 solar-powered pump units in 20 grape vineyards of lead farmers in Feroz Nakhcheer and Hazrat-e-Sultan, the two targeted districts of Samangan province. The solar-pumps decreased the irrigation cost for at least 2 jeribs of vineyards owned by the farmers to almost zero. The solar-pump technology has proven to be a low cost and effective source of farm power.

[redacted], one of the beneficiaries from Feroz Nakhcheer district said, “I am a grape farmer and I have not spent any money for my vineyard irrigation this season, thanks to the USAID support that has provided us with the new technology solar irrigation system.”

Solar pump grantee installing solar panel, Hazrat-e-Sultan, Samangan, February 18

The solar-powered pumps reduce the irrigation costs for up to four jeribs of grape vineyards to nearly nothing. Farmers in Samangan usually pump water to their vineyards using diesel-run generators that comprise at least 60% of the cost of production. Solar pumps can simply eliminate this cost in production by using clean and renewable energy from solar power.

Market Research for Nut Processing

[redacted], an emerging nut processing company, was supported with grant funds and conducted market research for nut processing including studying market demand for flavored nuts with specific tastes in the RADP-N target area. [redacted] also conducted market research in India and identified the suitable processing equipment and potential manufacturers in India. [redacted] will be encouraged to attend RADP-N business development training in year three to assist them in the preparation for their planned new business.

Off-Season Melon Production in Greenhouse

RADP-N supported [redacted] to establish a 10,000 sqm commercial farm with a net area 6,000 sqm greenhouse for production of off-season melons. The objective of the project is to establish 15 melon greenhouses in Balkh Province, introduce a new melon variety (Sereen F1), produce

up to 45,000 melons during the off season, increase customer demand for melons during the off season, create employment opportunity for at least 15 women, and develop a sustainable integrated approach to greenhouse farming. The grant was awarded in May and will cover six months. Construction of the greenhouses has been slow, but are expected to be completed in October 2016. These green houses will be fitted with heating systems with irrigation provided by solar pumps. Due to the delays in installation, the planting date will be revised to meet the early melon season which will benefit the growers as the market prices will still be high. The grant will provide employment opportunities for at least 15 women per day to work on off season melon production in the greenhouses.

In-kind Grant for Jamshid Ramin X-Ray Machinery
In the third quarter of year two, RADP-N awarded an in-kind grant to [redacted]. The company is the largest processor and exporter of dried fruits located in Mazar-e-Sharif. Under this grant, RADP-N will provide [redacted] with an x-ray sorting machine so that raisins can be processed locally in order to export directly to Europe and other overseas markets.

Livestock Value Chain

Direct Implementation

Small Ruminant Herd Health Package
In the first quarter of year two, the RADP-N technical team developed a selection criteria and a questionnaire for farmers, and selected 149 field staff from all six target provinces, including 11 females, to participate in a series of SRHHP ToTs. The participants received training on how to complete the questionnaire and conduct the baseline assessment for the training in November 2015. These trainings focused on increasing understanding of SRHHP principles to ensure that the trainers were capable of replicating the trainings to farmers in their respected areas.

RADP-N's Extension Staff trained women on SRHHP in Pul-e-Khumri district (Baghlan) April 20.

The trainings consisted of theoretical and role-play sections. The theoretical part focused on the SRHHP curriculum and the VFU seasonal calendars. The role-play was acted out by the extension workers and consisted of the advantages of extension training, increasing the frequency of farmer visits to the VFUs, and the impact of VFU sales and income.

RADP-N's LEW trains female farmers on SRHHP in Nahr-e-Shahi district (Balkh), December.

The participants were also shown a video clip on Foot and Mouth Disease (FMD) prevention. After completing the ToT, the team selected 2,295 farmers in the six provinces for a series of SRHHP training of farmers, starting in mid-December. The trainers replicated four topics[10]

[10] Breeding, deworming, sheep's pox and winter feed

from the first phase of the SRHHP training curriculum to 2,177 out of 2,295 initially selected farmers, including 165 females.

The table below indicates SRHHP ToT and training of farmers details by province:

SRHHP ToT and Training of Farmers Participants						
#	Province	ToT		Training of Farmers		Total Farmers/Trainers
		Male	Female	Male	Female	
1	Badakhshan	38	2	550	30	620
2	Baghlan	22	2	288	30	342
3	Balkh	32	3	497	45	577
4	Jawzjan	12	1	165	15	193
5	Kunduz	21	2	315	30	368
6	Samangan	13	1	197	15	226
Sub-Total		**138**	**11**	**2,012**	**165**	**2,326**
Grand-Total		**149**		**2,177**		

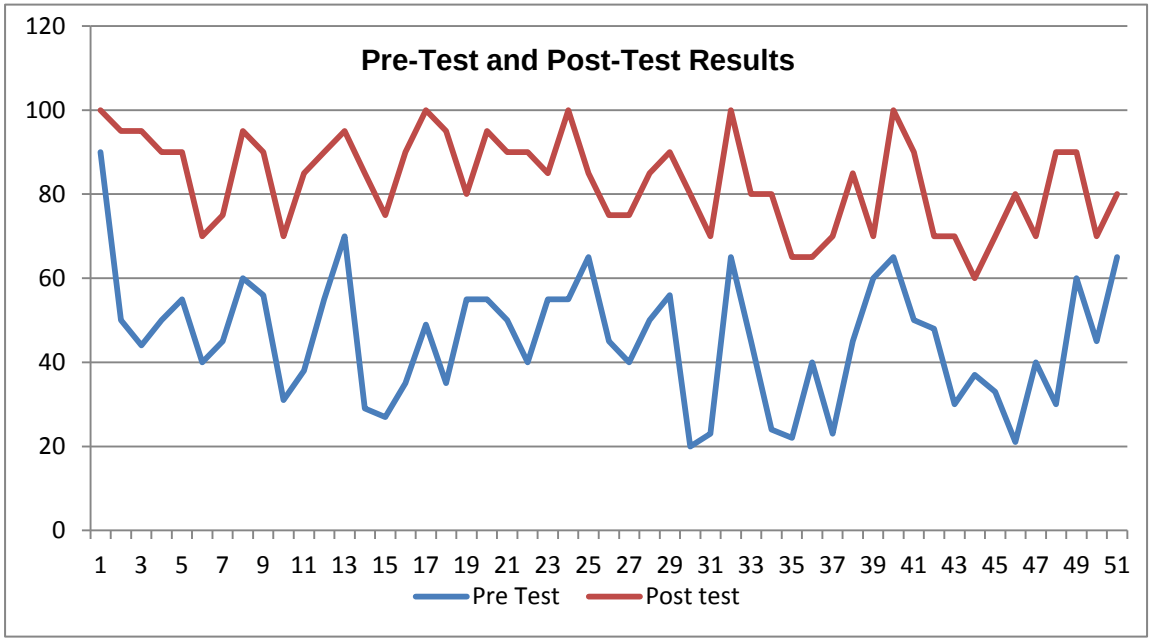
The RADP-N technical team closely supervised both the ToT and the training of farmers to make sure that implementation met the agenda requirements and standards. In April, RADP-N revised the SRHHP meat value chain concept note and reduced the scope to only train 100 butchers on meat value chain topics over the next five months.

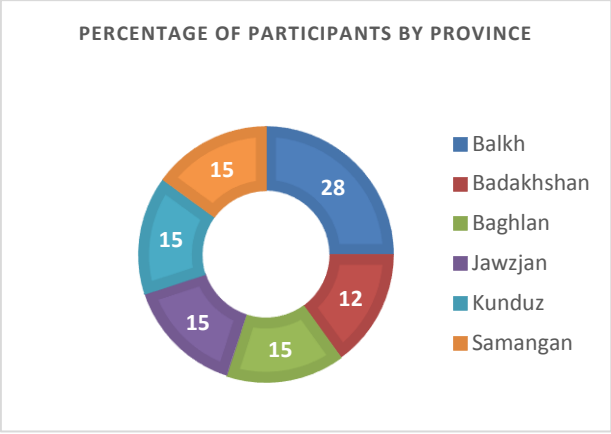
Meat Value Chain

In quarter one of the reporting year, the RADP-N technical team developed a training strategy, check list, and training materials for the meat value chain two-day ToT. The team organized a ToT around the topics of meat inspection, food safety, and hygiene in Mazar-e-Sharif for 59 participants[11] (Badakhshan 9, Baghlan 7, Balkh 20, Jawzjan 6, Kunduz 8, and Samangan 9). The training consisted of both theoretical and practical sessions. The theoretical session covered topics related to meat inspection, meat hygiene, food safety, and the proper use of butcher tools. The practical training included role-play in which participants demonstrated the impact of waste management practices, and how improved butcher shop practices could impact their meat sales. This activity focuses on the end market of the red meat value chain as well as on consumer's protection by increasing the production and sales of improved quality meat, this was conveyed to the ToT participants from all six target provinces.

At the start of the training, a pre-training evaluation was conducted to test trainees' knowledge and skills. At the end of the training, participants completed a post-training evaluation. A contrast of the average pre and post-tests showed an improvement in trainee knowledge at the end of the training as shown in the line-graph below:

[11] VFU, LEWs, provincial coordinators, provincial extension officers, RADP-N Mazar-e-Sharif based technical staff and GIRoA staff from RADP-N targeted provinces.





Following the ToT, the team prepared the butcher selection criteria, training plan and selected 100 butchers in the six provinces for the two phases of training. Early in the year, the team trained the selected 100 butchers on two[12] of the seven main topics of the SRHHP curriculum during the first phase of the butcher training.

The second phase of the butcher training started in April and continued to completion in August. The 100 butchers, as detailed by province in the pie chart, were trained on seven topics[13], with a new topic each month to improve meat quality and to provide hygienic meat to consumers. Through this activity, RADP-N has enhanced the skills of the butchers, helped provide more hygienic meat and encouraged the sale of local meat in all six targeted provinces. The butchers have learned to provide higher quality and sanitary meat to customers, and have noticed considerable increases in sales. Some of the participants discussed notable changes in their behaviors:

"Overall the training was very beneficial and helpful to me. This training increased my knowledge about different methods of meat storage, as well as about healthy and unhealthy meat. This program brought lots of changes and improvements in hygienic meat processing in my butcher shop," said [redacted] in Baghlan.

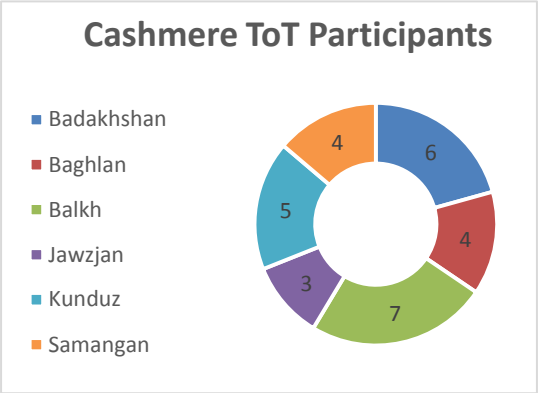
[12] Hygiene, monitoring and zoonotic disease
[13] 1. Meat borne diseases, 2 Hygienic control protocols, 3 Working condition and butcher's responsibilities to protect consumer's health, 4. Proper slaughtering of animal to improve hygienic meat quality and reduce waste, 5. Difference between healthy and contaminated meat, 6. Quality meat processing and 7. Meat storage methods and environmental waste management practices

RADP-N's extension staff conducting butcher training in Dehdadi district (Balkh), July.

In Kishem district of Badakhshan province, Khair Muhammad has been running a butcher shop for more than a decade. He was unaware that disease that could be transferred to humans from contaminated meat and had taken no hygienic measures. After participating in the training, he said. "Before attending USAID's training, I believed diseases would go away once the unhealthy animal was slaughtered. I also considered it unnecessary to wrap-up the meat in plastic or in a protective sheet." He learned the effectiveness of food quality measures and immediately said he would adopt what he learned. This has improved the quality of the meat and increased sells, and has increased his number of customers. The butchers were also later briefed on the importance of using personal protective equipment[14] and, at the end of the training each butcher received a practical hygiene package.[15]

Cashmere Value Chain

RADP-N assists goat owners in the Northern provinces to increase knowledge of improved cashmere harvesting methods and provide alternative sources of income through high quality cashmere production. This activity encourages cashmere combing, rather than shearing, and helps increase yields and commercial value, and raises awareness of international price differentials for various grades and colors. RADP-N organized a one-day cashmere harvesting ToT in March in Mazar-e-Sharif to train the trainers who would replicate the training to the cashmere activity beneficiaries. The training was attended by 29 trainers (20 Local Extension Worker -LEWs, five Field Extension Officers (FEO) and four Provincial Coordinators) from all six targeted provinces, as shown in the Cashmere ToT pie chart. The theoretical portion of the ToT covered presentations on topics[16] such as cashmere processing, harvesting and collection. In the practical portion of the ToT, RADP-N instructors demonstrated how to comb cashmere on live goats and the trainees then practiced these techniques themselves.



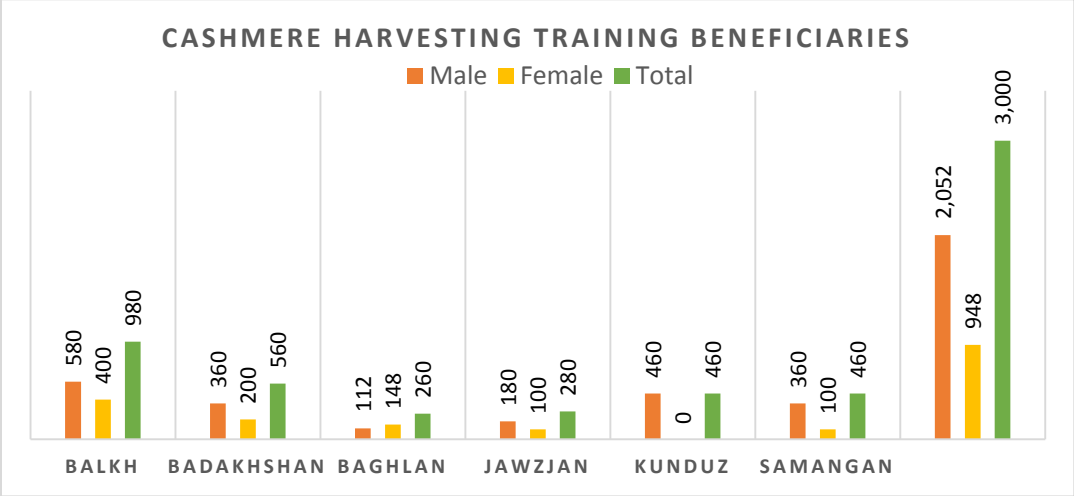
RADP-N's staff conducted cashmere training in Khowja Kaftar village (Kunduz), May 17.

The participants were also trained on how to

[14] Apron, rubber shoes, masks, goggles, gloves and using hand washing detergents
[15] 100 gloves, 100 face masks, one role of bandage, one bottle of liquid Pouidin for wounds, and a bottle of liquid Dettol.
[16] Proper cashmere harvesting methods, cashmere combing, and cashmere collection and processing using improved methods

properly use the questionnaires while assessing beneficiaries and goat owners in their respective areas. Following the ToT, the technical team started beneficiary selection in all six targeted provinces and selected 3,100 individuals to participate in the training.

After completion of the necessary preparation, the RADP-N technical team, during the first two months of the third quarter of year two , organized a series of one-day cashmere harvesting trainings and 3,000[17] beneficiaries were trained, including 948 women of the initial 3,100 targeted goat owners from all six provinces. The bar chart below outlines the number and location of farmers trained in each province:



The theoretical portion of the training reflected the ToT format and covered cashmere value, proper collection methods, and proper storing. The practical sessions covered proper harvesting and cashmere collection by combing. The trainers also explained endemic diseases of small ruminants and the need to immunize their animals with proper vaccines to reduce mortality and morbidity, and briefed the farmers on small ruminant production. Following the training, beneficiaries received an essential toolkit[18] for cashmere harvesting. In June, the field staff completed the first stage of the market research assessment and gathered cashmere production and sales information for the six provinces. The team interviewed 286 beneficiaries, including 78 females, and finalized the assessment's findings. Key findings are as follows:

- Average goat herd size per interviewee was 24.
- 60% of trained beneficiaries harvested cashmere (70% were women and 54% were men).
- The average harvested cashmere per goat was 54 grams; sampled goats produce between 30 and 85 grams.
- Nearly one-third of those harvesting cashmere sell cashmere at an average price of AFN 950/kg. The remaining were not able to sell their cashmere due to a lack of market. More women sell cashmere than men (38% versus 26%).
- The average gain for a herder selling cashmere is AFN 1,260, ranging from a high of AFN 2,900 (women in Balkh) to a low of AFN 1,000 (men in Samangan).

[17] Due to insecurity in Dahana-e-Ghuri district of Baghlan province, training for 100 beneficiaries was postponed.
[18] One cashmere comb, one Dettol soap, two meters plastic sheet, one scissor, one jute bag, one pair of gloves, and one pair of eye glasses.

- Combing cashmere is a well-accepted technique; 98% of harvested cashmere is done by combing.
- Of all trained farmers, 58% harvested cashmere at the time of the study and 98% of this group used the combing method.

Later in the year, contacts were made with RADP-W to explore interest among traders from Herat province in establishing connections in the north. In July, the RADP-N technical team visited Herat and met with cashmere traders to examine alternative markets for combed cashmere and discuss their interest in sourcing cashmere from the Northern provinces.

The team visited five cashmere companies and one livestock farm - [redacted] and [redacted]. The Herat based cashmere companies showed no interest in expanding their business to the north, arguing the quantity and lack of quality were issues with the cashmere in the region. The companies recommended RADP-N to focus on the cashmere supply chain and increase cashmere quantity as the only effective way to attract cashmere traders to the north. Based on the assessment, the cashmere production rate is still very low in the region and it shows that most farmers are not collecting cashmere from their goats.

Meanwhile, RADP-N will work on identifying provincial or local traders who are collecting cashmere and transporting it to Herat to strengthen their linkages with herders as well as with cashmere collection centers in the north. RADP-N will facilitate direct linkages between the local buyers in the project-targeted provinces and the traders in Herat province to ensure there is enough demand and the farmers get direct benefits from their products.

Para-vet Training

RADP-N addressed the subject of livestock health, herd size and other animal husbandry issues through its paravet training initiative. The rigorous training program was designed for 15[19] (ten male and five female) trainees. It provided theoretical and practical instruction on animal healthcare (immunity, vaccination, internal diseases, surgery, poultry diseases, parasitic diseases, bacterial and virus disease), and other animal husbandry issues (feeding, housing, breeding and reproduction, business skills development and value chain dynamics) to address the lack of quality livestock services available and increase household incomes through improved herd production. The trainees were selected from Badakhshan, Baghlan, Balkh, Jawzjan, and Samangan provinces. During March, through an open competition, RADP-N in close coordination with provincial DAILs, selected 15 applicants, including five females, to participate in a six-month long paravet professional training program in Mazar-e-Sharif. With all arrangements made in March, the team was able to start the training in April and completed the program by the end of September.

RADP-N's 15 paravets visit DCA paravet training center in Charikar, July 16.

[19] Badakhshan 2, Baghlan 1, Balkh 4, Jawzjan 4, and Samangan 4

RADP-N's trainers conducting training for paravets trainees in Mazar-e-Sharif (Balkh), June.

RADP-N officially launched the paravet training program in Balkh with the 15 paravets, nine RADP-N staff, and a DAIL representative. During the opening ceremony, the head of the DAIL veterinary department thanked RADP-N and encouraged the participants to get the maximum benefits from the training. Two experienced trainers from the Charikar training center were assigned to carry out the training which was offered to the 15 attendees. The training provided theoretical and practical instruction on animal healthcare and production to address the lack of quality healthcare and increase household incomes through improved herd production.

The theoretical sessions focused on immunity, vaccination, internal diseases, surgery, poultry diseases, parasitic diseases, bacterial and virus diseases, reproduction, livestock feeding and feed resources, animal housing, and animal breeding. Business development and value chain dynamics, vaccination, livestock deworming methods, and other sessions related to the treatment of diseases were covered in the practical sessions.

[redacted], a 22-year-old woman selected as a para-vet trainee, related that she, "…was interested to study veterinary medicine and open a VFU, but due to societal restrictions and economic problems I could not make it happen." She added that the program helped her to meet her dream and learn the necessary animal health skills. Upon completion, [redacted] is going to cover 10 to 12 villages, with an eye to expanding to other villages that do not have veterinary health services.

During the training, RADP-N also facilitated a field visit for the trainees to the paravet training center in Charikar district (Parwan), where a number of other male and female trainees were enrolled in paravet training. The visit aimed to help the trainees exchange knowledge and lessons learned between Balkh and Parwan paravets.

During the last stages of the training, RADP-N signed MoUs with six VFUs, five in Balkh and one in Jawzjan, that allocated the VFUs to train the trainees who were assigned to work under their supervision. The MoUs were for a period of five days to help the paravets learn community-based practical work, visiting herders with sick animals, as well as familiarizing them with the completion of the VFU logbook. The five-day paravet training also included: animal vaccination and deworming, animal stable technical observation, collecting herder and livestock owner's anamnesis and familiarizing them with VFU equipment, drugs, vaccines, etc.

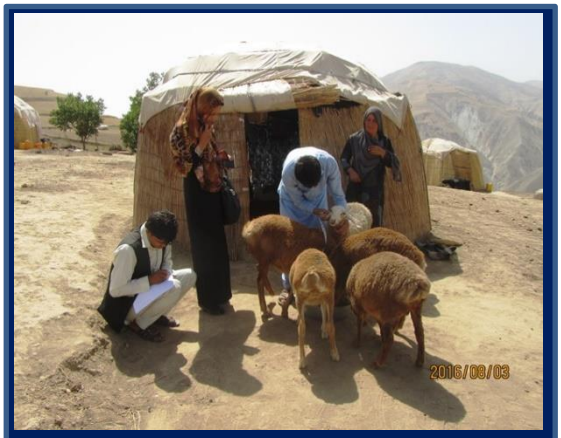
RADP-N's trainers conducting Lab training for paravet trainees in Mazar-e-Sharif (Balkh), July 2016.

Following the conclusion of the training course, RADP-N continues supporting the paravet trainees with two years of technical support that includes licensing assistance, toolkits, and

refresher trainings. In late September, RADP-N received an official letter from MAIL indicating the legitimacy of the paravet training as well as officially allowing the trainees to operate as VFUs in their respective areas.

Lamb Rearing

Women play a central role in the livestock sector, especially with small ruminants like sheep and goats. Under this activity, women received and reared lambs for 4 months in order to market them directly to local butchers to process healthier, higher quality meat.



RADP-N's team monitoring lamb rearing activity in Badakhshan, August 2016.

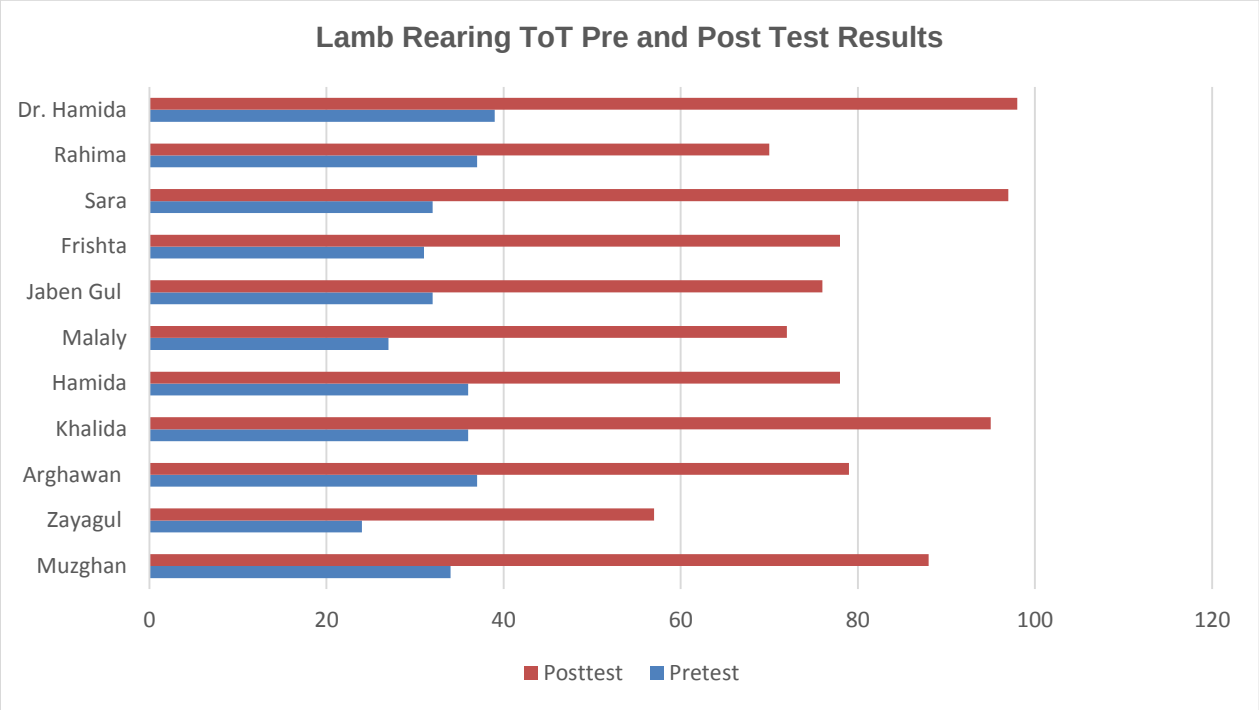
In January 2016, RADP-N organized a one-day workshop on selecting lamb rearing beneficiaries for 11 female extension staff (nine LEWs and two provincial extension and value chain staff) in Mazar-e-Sharif. Following the workshop, RADP-N started lamb rearing beneficiary assessments in the six provinces and finalized the selection of 800 women beneficiaries. Details of the selected beneficiaries are shown in the table below:

Selected Women Lamb Rearing Beneficiaries				
#	**Province**	**District**	**Females Selected**	**Total by Province**
1	Badakhshan	Yaftal Payeen	25	120
2		Kishem	30	
3		Baharak	25	
4		Faizabad	40	
5	Baghlan	Pul-e-Khumri	65	100
6		Baghlan Markazi	35	
7	Balkh	Nahr-e-Shahi	101	240
8		Chimtal	30	
9		Khulm	30	
10		Dehdadi	29	
11		Balkh	20	
12		Dawlatabad	30	
13	Jawzjan	Faizabad	30	100
14		Aqcha	30	
15		Sheberghan	40	
16	Kunduz	Khanabad	20	120
17		Aliabad	20	
18		Chahar Dara	20	
19		Kunduz Center	60	
20	Samangan	Aybak	60	120
21		Khuram Wa Sarbagh	20	

22		Feroz Nakhcheer	20	
23		Hazrat-e-Sultan	20	
Grand Total				**800**

Additionally, RADP-N conducted a three-day follow-up ToT on lamb rearing[20] for its 11 staff (eight field extension workers and three extension officers) in Mazar-e-Sharif. The ToT addressed general information on lamb rearing and requirements and expected outcomes of the activity.

The ToT recipients completed a pre and post training assessment to gauge participant knowledge of the activity. Comparing the pre and post training tests, participants showed significant knowledge improvement averaging from 33% to 81% as shown in the bar chart:



In May, RADP-N prepared the lamb rearing training manuals, curriculum, activity calendar, and standard MoU outlining beneficiary responsibilities with a focus on activity sustainability. The team completed the MoUs with each of the 800 beneficiaries, and organized the beneficiaries into 80 groups of 10.

RADP-N signed four grants with four agricultural organizations ([redacted] to procure and distribute lambs and feed to the 800 beneficiaries, with each organization responsible for a specific area. The grantees started distributing lambs and feed in late May. In June, RADP-N conducted a one-day refresher ToT on lamb rearing to its 11 staff who subsequently replicated this training to the 800 beneficiaries. By the end of the activity, the team distributed 4,000 lambs and feed to 800 beneficiaries.

[20] Feeding and fattening, construction and upkeep of lamb stables, and infectious and parasitic diseases

Grants

Revive Wool Production and Processing

Due to a lack of technology, processing tools, and skills, unprocessed wool is exported and then reimported as higher priced processed wool.[21] To help farmers improve wool quality and quantity through technical training and improved processing technology, RADP-N awarded a two component (wool production and wool processing) grant to [redacted] in February. The grant was designed to improve wool production and market linkages, and to establish 20 female operated wool processing and spinning units. In March, the grantee selected 20 villages in close coordination with the local shuras and the DAIL department in Dawlatabad district (Balkh) and completed the beneficiary selection survey in 12 of 20 selected villages. The activity aimed at producing 12,500 kg of processed wool to replace the same volume of imports. [redacted] selected the 1,500 beneficiaries, including 500 women, digitalized the beneficiary list, and submitted for RADP-N review to ensure that the selection criteria were applied properly. [redacted] also developed training materials and finalized the training manual in May. The grant with [redacted] was terminated on August 16 due to failure in meeting the contract requirements and poor management.

Lamb Rearing Grants

Under the four lamb rearing grants, RADP-N signed with the four agricultural organizations ([redacted]) to procure and distribute 4,000 lambs and the required feed supplies to the 800 beneficiaries. By the end of September, the grantees - conducted the following activities throughout the activity duration:

- Printed all lamb rearing related documents and checklists for beneficiaries.
- Completed procurement and distribution of 4,000 lambs for 800 beneficiaries in the six-targeted provinces under close supervision of RADP-N's technical team.
- Procured and distributed three months feed for 4,000 lambs.
- Prepared reports on distributed lamb's health, mid-weight, and submitted to RADP-N.
- Supported relevant VFUs on beneficiary visits and health checkups.

On August 15, RADP-N revised the period of performance for grant G-MAZ-051 of the lamb rearing activity, which was implemented by [redacted] in Balkh and Jawzjan, with August 28, 2016 as the contract end date. This decision was based on poor contractual performance. The livestock team been tasked to oversee the remaining portion of the activities in both provinces.

On August 18, RADP-N revised the period of performance for grants G-MAZ-055 and G-MAZ-054, which was implemented by [redacted] in Samangan and Baghlan, with August 28, 2016 as the contract end date. This decision was also based on poor contractual performance. The livestock team been tasked to oversee the remaining portion of the activities in both provinces.

Business Development Skills and Value Chain Dynamics

In April, RADP-N signed a grant agreement with [redacted] to implement the business development skills and value chain dynamics activity. The grantee selected 1,900 beneficiaries to participate in the activity and hired 12 trainers[22], including four

[21] Based on the United Nations Food and Agriculture Organization's (UNFAO) 2003 finding, Balkh province has 500,000 sheep, mostly for Karakul (suitable wool breed for carpet weaving). Sheep raising in Balkh has proven to be a reliable source of income for sheep owners and wool producers.

[22] Three of the 12 trainers conducted the ToT for the remaining nine trainers who replicated the training to farmers.

females. [redacted] also completed the ToT beneficiaries' assessment tools for different value chain actors.[23] To identify the knowledge level of the 174 ToT participants, the team conducted a ToT assessment. In late September, CCS conducted the three-day ToT for 174 individuals[24] in Balkh province on business development skills and value chain dynamics. The ToT was carried out by grantee trainers in three venues in Balkh province. The ToT covered the following topics:

- What is a business?
- Business approach to production.
- Types of businesses.
- Benefits of businesses.
- Examples of successful businesses in Afghanistan, demand, customers, supply, and process.
- Marketing, costs, production modes, profit concepts, cost-benefit analysis approach, and other related topics.

The activities are ongoing and the preparation of training materials for the training of 1,900 beneficiaries is under way.

Butcher Shop Improvements

To increase the production and sales of improved quality meat, RADP-N is assisting butchers to upgrade the hygienic standards of their shops. In the second phase of the butcher shop improvements activity, RADP-N signed a grant agreement with the [redacted] in the beginning of quarter three. [redacted] will renovate the shops of the 100 targeted butchers who received training from RADP-N in the first phase of this activity.[25]

[redacted] consulted with RADP-N technical staff and developed the criteria to conduct an assessment of the 100 shops aiming to determine shops that required improvement. The team found that only 70 of the 100 assessed butchers met the criteria. The team worked with the 30 remaining shops and enabled them to meet the criteria:

- Butcher shop must not be smaller than 3x4 meters.
- Butcher must participate in the toolkits operation and maintenance training.

After finalizing the 100 beneficiaries, the grantee invited companies to bid to improve the shops. In close coordination with the RADP-N technical team, the grantee selected two out of the 13 companies who applied to provide the butcher equipment and to improve the shops. The grantee then signed an MoU with each of the100 targeted butchers[26] and conducted a one-day training for 15 participants in Baghlan, 28 in Balkh, 15 in Jawzjan, and 15 in Samangan. The remaining two provinces, Kunduz and Badakhshan, are planned for October 2016. The grantee also started butcher shop improvement work in August, and as of September 30, completed window installation, and tile and ceramic paving of 28 shops in Balkh, 15 in Jawzjan, and 12 in Badakhshan. This activity is still in progress.

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[23] VFUs, extension workers, butchers, cashmere goat and lamb herders, lamb rearing units, and cashmere collection points

[24] 115 VFUs and 22 technical team extension staffs, 14 animal feed suppliers, two cashmere collection centers, 15 Paravets trainees, and 6 female interns

[25] Knives, cleaver, chopper, file, hanging hook, scissors, belt, scale, calculator, measuring tools, ax, dustbin, table, bone saw, rubber shoes, sink, apron, pump, gloves, knife cover, meat grinder, sign board, office desk, chair, file cabinet and rubber slab.

[26] The butcher should participate in training, should practice timely maintenance of the butcher equipment, and facilitate visits by RADP-N.

Commercial Livestock Breeding (Livestock Holding Pens)
In June, RADP-N signed the grant agreement with [redacted] for a seven-month improved livestock housing project to be implemented in Baghlan province. This activity aims to improve health, cleanliness in rearing, increase weight, and produce hygienic meat from sheep and goats in the area. Following the signing of the grant agreement with [redacted] for commercial livestock breeding, the team has started the initial phase of the activity and has made the following progress:

- Finalized the survey tool with approval of the RADP-N technical team.
- Completed the survey of 150 eligible women who are currently involved in animal husbandry.
- Submitted the final survey result to RADP-N for selecting100 eligible female beneficiaries.
- Prepared the training manual.

Enabling Environment

National Constraint Analysis
During the year two implementation period, 20 identified national constraints were completed and submitted to the Regional Agricultural Development Program-South (RADP-S) for aggregation. It is understood that the first 14 of these constraint analyses submitted by the three RADPs have been aggregated and sent to MAIL. The full 20 constraints analysis include:

- 001 Lack of a Systemized Structure for Provision of Extension
- 002 Poor Management of Water Resources
- 003 Lack of High Quality Seeds and Planting Materials
- 004 Post Harvest Handling
- 005 Lack of Access to High Quality Pesticides
- 006 Constraints for Women to Achieve Agricultural Sector Opportunities
- 007 Associations and Cooperatives
- 008 Skills Training for Women
- 009 Lack of Availability, Access, and Use of Mechanization in the Agriculture Sector
- 010 Lack of Proper Range Management Techniques When Grazing Livestock
- 011 Lack of Access to Finance
- 012 Public Private Partnerships
- 013 Lack of Access to Markets for each Value Chain
- 014 Lack of Effective, Functioning Customs, Border Procedures to Facilitate Cross Border Trade of Agricultural Produce
- 015 Livestock Inputs and Services
- 016 Lack of Electricity for Value Chain Development
- 017 Enabling Business Environment & Registration
- 018 Land Tenure & Property Rights
- 019 Quality Control
- 020 Women's Access to Value Chain Markets

RADP-S has reported that the aggregated constraint analysis sent to MAIL have already been used as input into three policy papers and one used to extract a high level brief based on MAIL demand. The fact that the analysis has been in demand prior to full completion is a positive sign.

Financial Management Training

In late 2015, RADP-N signed a grant with the [redacted] for a financial management training activity to train 120 qualified individuals from successful agribusinesses, agricultural associations and VFUs, on financial management in the six target provinces. In January, the grantee conducted the first round of this training in Balkh, Kunduz and Jawzjan provinces, for 51 trainees, and focused on the basics of accounting and financial reporting. In the second month of quarter two, the grantee conducted the second round of the six-day training, for 62 participants, in Badakhshan, Baghlan, and Samangan provinces.

One of the participants presenting results of the group work, Kunduz - January 17, 2016

By the middle of that quarter, the grantee had completed the financial management training for 113[27] representatives of agribusinesses, agricultural associations and VFUs. Trainees' locations by province are shown in the table here:

Financial Management Training Participants		
#	**Province**	**Total Trainees**
1	Badakhshan	9
2	Baghlan	24
3	Balkh	30
4	Jawzjan	11
5	Kunduz	10
6	Samangan	29
Total		**113**

Proposal Writing and Business Plan Development Training

Following the grant solicitation document on March 2016, [redacted] received a Fixed Amount Award (FAA) grant to conduct the training. The grantee conducted a baseline survey in six targeted provinces in April and identified capable trainees from agribusinesses, Ag Deports, associations, cooperatives, VFUs, and others. AMC developed the training curriculum in May with RADP-N collaboration.

Proposal Writing and Business Plan Development Training Participant			
Province	**Male**	**Female**	**Total**
Badakhshan	1	0	1
Baghlan	4	0	4
Balkh	23	14	37
Jawzjan	4	1	5
Kunduz	2	1	3
Total	**34**	**16**	**50**

[27] Seven of the 120 targeted participants were not able to attend the training.

Second round of proposal writing training final day, Mazar-e-Sharif, July 21, 2016

Through this activity, RADP-N assisted agribusiness such as Ag Depots, associations, cooperatives, VFUs, and other organizations with limited capabilities, to design and write professional proposals and business plans, and request financial assistance from donors. These businesses generally are forced to pay a consultant to develop proposals for a RADP-N grant concept note because they lack the experience and knowledge to effectively communicate their ideas.

The participants completed the Proposal Writing and Business Plan Development training in July 2016. The five-day training was conducted with a total of 50 businesses in two rounds; the first round for 22 businesses from May 29 to June 2 and the second round for 28 businesses from July 17 to 21.

Gender

Gender Analysis in RADP-N's Agricultural Value Chains

The RADP-N gender team carried out gender analysis activities from September 9 through October 8, 2015 to assess gender based constraints in six RADP-N targeted provinces. The analysis focused to:

- Identify key gender opportunities, strengths, and gaps in approaches to empower women.
- Address female constraints and ensure men and women are equally benefited by the RADP-N program.

RADP-N's gender team conducting gender analysis research with an agricultural depot in Mazar-e-Sharif.

The study was based on primary data collection and analysis using a gender-sensitive qualitative and participatory methodology and a wider literature review. A total of 148 Focus Group Discussions (FGDs) were held: 97 FGDs with 604 male farmers, and 51 FGDs with 327 female farmers. In addition to FGDs, individual interviews were conducted with the directors of DAIL, Department of Women's Affairs (DoWA), Department of Commerce and Industries (DoCI), veterinary extension service providers, agricultural depots, food processors, and financial and credit institutions from Balkh, Badakhshan, Baghlan, Jawzjan, Kunduz, and Samangan provinces**.** The RADP-N gender analysis resulted in important findings about gender-based constraints restraining the progress towards effective participation of women in agricultural economic activities to include: lack of access to productive resources, information, and extension services, lack of decision making power, and constraints on equal participation and benefits.

The RADP-N gender analysis in year two resulted in the provision of multiple gender-based assistances to the RADP-N value chains. These include efforts to: (I) identify and introduce women farmers, women owned agricultural associations/cooperatives to RADP-N activities, (II) collect information and provide gender based assistance in concept designing, project

development and implementation, (III) monitor ongoing gender related activities in the field and provide feedback and suggestion, (IV) and help RADP-N to remove legal barriers which prevent women from full participation in the agriculture sector.

Women's Contributions in Agricultural Value Chains

Early in the year, the gender team organized a conference on "Recognizing Afghan Women's Contributions in the Agricultural Value Chain" to create a common platform for female agricultural actors. The conference aimed to make connections, build cooperation and trust, and integrate women into the project value chains. During the conference, 100 women from farming communities in RADP-N focused provinces formed into commercial networks such as, wheat, HVC, small ruminants, extension services and preserves. The groups serve as an information exchange hub for sharing timely and accurate information related to production technologies, disease outbreaks, marketing, credit, and business development opportunities. RADP-N continues to work with these commercial networks to strengthen their collective action to mitigate challenges to advance wider food and income security across Northern Afghanistan by integrating them into RADP-N's activities as per their production.

A total of 136 participants attended including: 21 combined GIRoA officials from DAIL, DoWA, DoCI, Afghanistan Chamber of Commerce and Industries (ACCI), as well as 15 participants from INGOs and financial institutions, and 100 female farmers. The table below shows the participants' numbers:

Conference Participants By Province			
Province	**Female Farmers**	**GIRoA Officials**	**INGOs/Financial Institutions**
Balkh	19	5	15
Badakhshan	22	4	0
Baghlan	18	2	0
Kunduz	0	3	0
Jawzjan	22	5	0
Samangan	19	2	0
Total	**100**	**21**	**15**
Grand Total	**136**		

The groups also brainstormed about the major challenges members face in their economic activities. During the final session, groups discussed opportunities and each group developed a one-year plan for their commercial activities. The table below outlines the challenges:

Major Challenges Listed By Groups	
Commercial Group Type	**Major Challenges**
Wheat	Inaccessibility of certified seeds and market linkages
High value crop	Market linkages and lack of packaging capacity
Vegetable	Lack of water and market linkages
Livestock (small ruminants)	Lack of Karakul processing capacity
Preserves (jam, pickle, sauce)	Lack of access to standard packaging materials
Veterinary extension services	Shortage of technical skills and medicines for animals

The conference helped government officials, traders and financial institutions to understand Afghan women farmers' contribution in the agriculture sector. In December 2015, the team met

with focal points in the wheat, horticulture, small ruminants, preserves, and veterinary commercial groups. The meeting aimed to understand their experience from the conference, determine the status of their group networking activities, recognize the main constraints faced in networking, and develop methods for how to address the constraints.

RADP-N designed and developed a comprehensive database under the name of "Women Farmers Profile Database", for women farmers working in RADP-N focused provinces, in January 2016. The database is used to determine and record their agricultural activities, production, target markets, sales practices, challenges/ obstacles and support women may need from the RADP-N program. During year two, RADP-N's gender team conducted several trips to project targeted provinces and identified, interviewed, and recorded the information of more than 300 women farmers in the profile database.

The Gender Outreach Specialist met Ms. [redacted], the focal point for the livestock commercial group in Baghlan, December 29,

Subsequently, the team introduced these women as beneficiaries to the HVC and livestock value chain teams. The gender team also developed a series of concept notes to increase female participation and contributions in the agricultural sector like: obtaining Tazkiras, developing a women's bakery project, and the gender entrepreneurship together (GET) concept note.

Market Linkage Support for Women

Through the ACCI Kabul, the RADP-N team contacted three women-run high value crop export businesses for meetings in Kabul in January 2016. The meetings aimed to explore women high value crop exporter's commercial linkages to understand quality standards, and export volumes, as well as to discuss standard packaging, PHH practices and target markets. Furthermore, social responsibility and company contributions to the economic empowerment of women in Afghanistan was discussed and opportunities of linking women's commercial groups with traders were explored.

The team also participated in the Spring Ag Fair 2016 held in Badam Bagh, Kabul. During the fair the team met with more than 27 (14 women and 13 men) farmers, producers and women owned agriculture companies in order to seek the possibilities of linking them with women farmers in the RADP-N focused provinces.

From April 21-23, RADP-N's gender team assisted eight women working in wheat, HVCs, preserves and pickles to participate in a two-day exhibition held by the BCCI in Mazar-e-Sharif. More than 80 Small Medium Enterprises (SMEs) exhibited their products and services. The goal of the exhibition was to develop SME linkages to consumers and other potential buyers through face to face events and other interactions.

International Women's Day celebration by WEWG/ DAIL Balkh province on

Internal/ External Advocacy

The Women Empowerment Working Group (WEWG) is the primary forum to strengthen coordination among the DAILs and the implementing partners with respect toward women's empowerment and women's participation in the agriculture sector. As part of the RADP-N external advocacy for gender, on Dec 29, 2015, RADP-N's gender team participated in the Balkh DAIL first monthly WEWG meeting in order to assist the Balkh DAIL's development of an annual action plan based on the terms of reference for the WEWG , the roles and responsibilities of the WEWG sub-committees and how each implementing partners will contribute to the success of the group and benefit from the collective knowledge of the members.

In the second quarter of the year, RADP-N's team also participated in the first Jawzjan WEWG meeting and provided them technical support as WEWG members. These meetings are still ongoing on a monthly basis with the active participation of RADP-N team.

On March 8, 2016, RADP-N commemorated International Women's Day, and inspired program staff to integrate gender in their activities in the RADP-N office. The ceremony was also supported by the Balkh DAIL, and was held in the DAIL compound, where more than 30 women exhibited their agriculture products and RADP-N presented them with gifts in appreciation.

Capacity Building

In April 2016, the RADP-N team conducted a workshop for 56 RADP-N staff to build awareness regarding gender based biases, equality, equity, and gender integration in RADP-N activities. Participants affirmed their strong commitments toward gender equality by creating a gender inclusive environment in their departments. In another effort that month, the RADP-N team identified eight women-owned agriculture companies[28] and associations for proposal writing and business plan development training.

The gender team conducted a gender awareness workshop for 56 RADP-N staff.

Late in the year, RADP-N's gender team made a trip to Khowaja Ghayeeb village of Aybak district to build linkages between women almond producers and the market, in order to sell their products at high prices to buyers. Currently, Samangan women are playing a key role in almond production, but due to a lack of direct access to the market they do not receive ideal prices for their agricultural products. During the visit, the team met with 14 women producers and provided them with market linkage supports by introducing them to whole buyers from Balkh. The table shows the almond varieties produced by the women in Samangan and the amount in seer (1 seer = 7 Kg), below:

Total Amount of Almond Produced by Women in Samangan			
#	Type	Amount in Seer	Ideal Price/Seer
1	Satar Baye	200	5500
2	Shokor Baye	417	2000
3	Qambari	100	2500
4	Morawaji	13	2500

[28] [redacted]

5	Qari Baye	10	2500
6	Khairdun Baye	100	2300
7	Wahidi	100	2300
Total		**940 Seer (6580 Kg)**	**19600**

Steps to Remove Legal Barriers
In cooperation with the Norwegian Refugee Council (NRC), RADP-N began an initiative that will assist 342 women farmers to prepare petitions, complete application forms, and validate bio-data to receive Tazkiras. As of September 30 2016, 18 women in Asyab-e-Sharaf village of Chimtal district and 12 women in Takhtapol village of Narh-e-Shahi district obtained their Tazkiras. The Tazkira proves a person's identity and supports the holder's rights to education, ownership of land and property, participation in political processes, and other liberties and entitlements under the law. RADP-N assists women farmers to obtain Tazkiras so they can meet the RADP-N requirements for beneficiaries to be benefited from the project.

Strategic Partnership
In year 2, RADP-N's gender team developed strategic partnerships with NRC, USAID/ PROMOTE/ WIE), DoWA, the Home Economic Department of the DAILs, and other INGOs working in the agriculture sector and women's empowerment. RADP-N's gender team will continue its effort to build partnerships, and help to remove legal, social, and cultural barriers that prevent female participation in agriculture activities, provide employment opportunities for young female professionals in agriculture organizations, and increase women's visibility in the agricultural value chain.

In order to engage young newly graduated women in the agriculture sector, on July 18, the team met representatives from RADP-N grantees and briefed them about the female employment opportunities for their organizations through USAID's PROMOTE/ WIE project. The purpose was to increase the participation of young women in agriculture by motivating RADP-N's grantees to recruit females. WIE's assessment forms and the gender team's observations indicate that of the 14 organizations, only 10 have a gender inclusive office environment. Following this, two female interns were hired by [redacted], two by [redacted] and two by [redacted]. The RADP-N team continuously pays visits to the companies and meets the interns to check on their satisfaction, their challenges and chart their learning process.

Nutrition

Hygiene and Nutrition
In 2015, RADP-N's technical team prepared a ten-lesson training curriculum in H&N. Ten female nutrition trainers were hired and trained, and training commenced on September 15, 2015. Pairs of trainers trained groups of 25 women across the Northern provinces of Baghlan, Balkh, Jawzjan, and Samangan. The curriculum consists of four lessons in good hygiene practices, four lessons in nutrition, and two lessons in agriculture. The first year of H&N training was completed with 3,250 directly benefiting.

Following the completion of the first year training, the H&N team conducted an evaluation to determine the results of the first year of implementation. Trainers surveyed 115 households. The survey data analysis shows positive changes in women's behavior and knowledge.

Based on the evaluation survey results, the H&N trainings were interesting for the majority of the women trained, and they were optimistic about positive changes in their households. The survey identified a positive change in beneficiaries' habits, and people eliminated some negative

customs of H&N. They expressed that the skills they learned from the H&N training help them to prepare good and balanced food for their families, especially for children who are in physical and intellectual development. Results indicated a reduction of diarrhea in families, especially among children, because people are using safe (boiled) water and water filters more frequently. Beneficiaries also felt that this project empowered women in rural areas to support other women in their communities.

The table below presents the achievement of the H&N activity in year two:

H&N Training Beneficiaries by Province					
Province	**District**	**Village**	**Group**	**Beneficiary/Group**	**Beneficiaries Trained**
Balkh	5	9	52	25	1300
Jawzjan	1	7	28		700
Samangan	1	5	28		700
Baghlan	2	6	22		550
Total	**9**	**27**	**130**	**25**	**3,250**

H&N Baseline Survey for Year Two

The baseline survey started in August and was completed in September 2016 in all project provinces. In total, 825 households were surveyed by the nutrition team (221 in Balkh, 303 in Jawzjan, 223 in Samangan and 78 households in Baghlan).

During the reporting period, RADP-N H&N teams met with some active women in target villages to explain to them the nutrition program goals and objectives as well as coordinate the initial steps to conduct H&N trainings. This program demonstrated the role of women through involvement in such an activities in their communities. In all project provinces, influential women and female Shura participants expressed their satisfaction about the beginning of such a program in their village. H&N provincial teams had a coordination meeting in DoWA to give them information about RADP-N programs in the provinces, and especially about the H&N program. DoWA appreciates the work of RADP-N, and are interested to visit the project sites. Additionally, coordination meetings were held in all targeted districts before project implementation. During these meetings, the team discussed the project's goals and objectives, beneficiary selection, group establishment, preparation of a training place, and security concerns. Each meeting ended with the recognition of program activities by community leaders and support for the team by providing convenient locations, as well as security.During the implementation of the activity, security problems, in Kunduz province and some parts of Baghlan province caused more than one month delay in the program.

Science, Technology, Innovation and Partnerships (STIP)

Executive Summary

- October – December 2015 (Quarter One)
    - Agricultural vulnerability research and mapping
    - Meteorological data research and acquisition to support agricultural vulnerability study
    - Preparations and deployment of Geographical Information System (GIS) Analyst to Mazar
- January – March 2016 (Quarter Two)
    - Digitization of vineyards from high resolution imagery across RADP-N districts
    - Digitization of orchards from high resolution imagery across RADP-N districts

    - Routine acquisition, processing and output of meteorological data
- April – June 2016 (Quarter Three)
    - Completion of QA of orchards spatial data, and subsequent upload of finalized data to Geo-Explorer for use by RADP-N staff
    - 2015 Poppy study, to define baseline conditions
    - Routine acquisition, processing and output of meteorological data
    - Support to wheat value chain in analyzing and mapping farm power and slope gradient
- July – September 2016 (Quarter Four)
    - Completion of 2016 poppy study
    - Support to wheat value chain
    - Routine acquisition, processing and output of meteorological data

Quarter One (Year Two)

Vulnerability Assessments

One of the stated ambitions at the beginning of the program was to look at the impact seasonal weather had on agriculture within the RADP-N area, as concerns had been raised about the risk of drought and poor crop returns following low snowfall. Alcis therefore undertook an exercise to use a number of datasets to assess the vulnerability of agricultural areas to meteorological impacts. To explain further, agricultural areas with higher density of irrigation network, and also a starting point of good quality agriculture, but that also have lower population densities, are more likely to be able to endure meteorological anomalies. Drier periods may put less pressure on the land and the farmers, compared to areas with a lower density of irrigation network, generally poorer agriculture and higher population densities. These latter areas may struggle through drier periods, with lower yields being distributed across higher numbers of people, leading to potential shortages and perhaps even conflict.

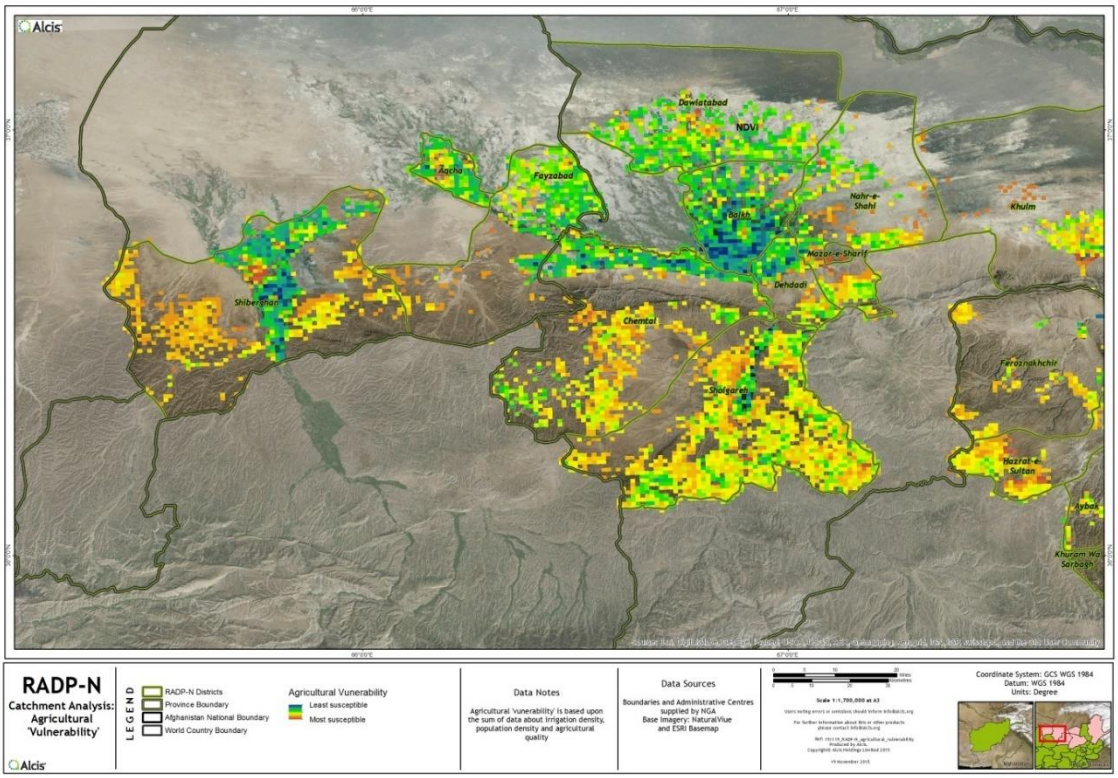


Figure 1: Agricultural vulnerability - assessment of irrigation, agricultural quality and population density (western RADP-N area)

Meteorological Data Acquisition and Processing

The logical next step was to incorporate meteorological data, and to this end research was undertaken to identify and acquire the most appropriate, accurate data that was available within an agreed budget. Data was therefore purchased that included the following meteorological parameters:

- Daily maximum and minimum temperature (Degree Celsius)
- Daily precipitation (millimeters)
- Historic (2008-present) daily maximum/minimum temperature and precipitation
- Snow Water Equivalent (SWE) data (millimeters), both current and historic (2008-present)

The very high temporal resolution of the data (daily) has allowed us to generate accurate average figures for any time period, or blocks of time, such as weekly or monthly. It allows accurate definitions of trends over time, allowing for better forecasting and understanding of the current meteorological conditions in the context of historical trends. As such, these data provide a means to conduct numerous additional analyses, and add significant value to Alcis' developing model of vulnerability zones.

In this period, Alcis put in place the necessary processes to download, integrate and store the information, as well as prepare derivatives routinely. The outputs from this consist of a number of map products and digital data layers which are shared via the RADP-N online Geo-Explorer platform, and accessible here:
http://bit.ly/1Imoj4L

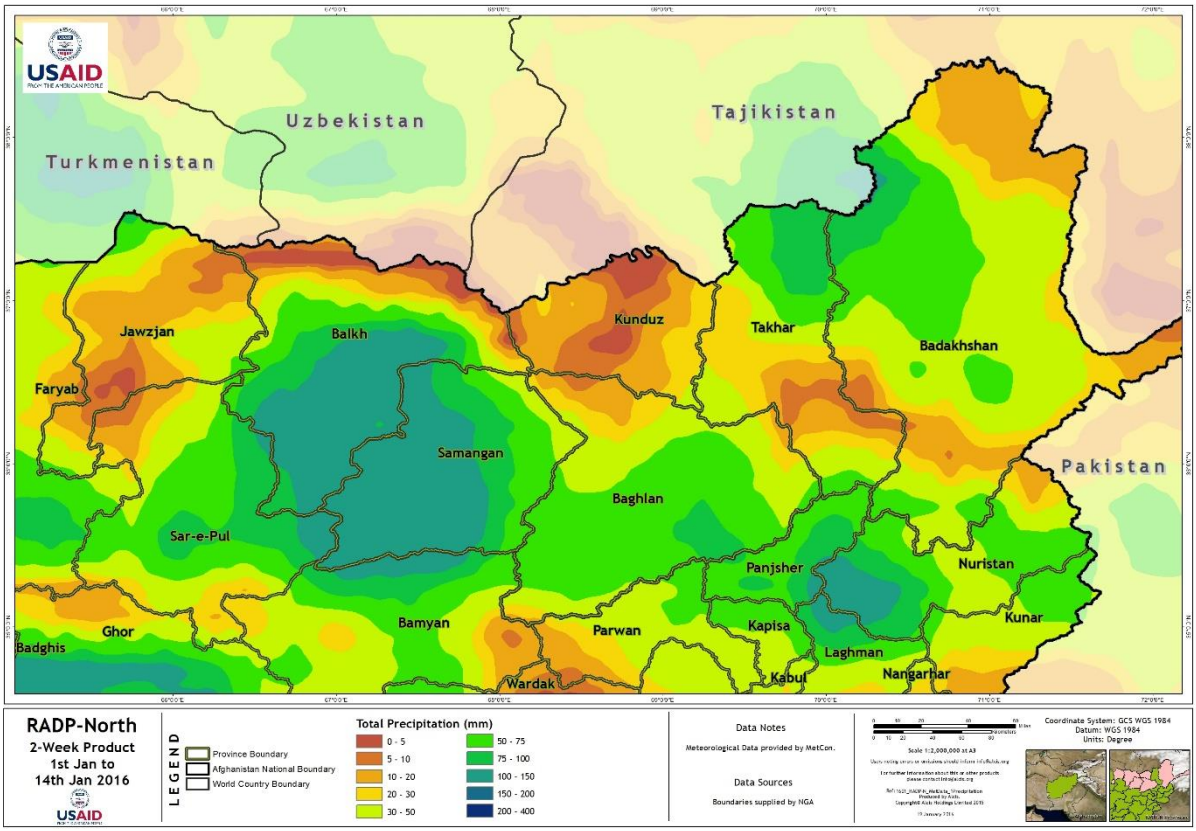


Figure 2: Example output from Alcis' meteorological data processing - total precipitation over a 2-week period; this is then compared with historic averages for the same 2-week block

STTA Deployment of GIS Analyst

At the beginning of December, one of Alcis' GIS Analysts, Matt Angell, deployed to Afghanistan to aid programmatic activities. Matt carried out a number of tasks over the period to 20th December whilst based in Mazar, including the demonstration of a number of new datasets and software tools, as well as lead discussions on future alternative approaches to data collection in the field. Matt also conducted capacity building tasks with RADP-N nominated GIS staff. A full report on Matt's activities was given in the Alcis December 2015 monthly report.

Quarter Two (Year Two)

Vineyard Mapping

Alcis' inputs during early 2016 were primarily focused on HVC value chain support, specifically the capture of the boundaries of all vineyards across RADP-N districts. This was done using high resolution satellite imagery dating from 2011-2015. Alcis used a detailed approach to this exercise, conducting a visual inspection of each and every field parcel.

Vineyards are very discernible to an experienced operator because of their structure, rather than their color, and this makes the data much more accurate compared to those using automated routines that are focused on finding areas of similar color. Alcis found significant differences between the boundaries, and derived area figures compared to the FAO's published data, which is more suitable for broader scale assessments

Figure 3: FAO vineyards (left) versus Alcis vineyards (right)

The vineyard digitization showed that there were 3783 contiguous areas of vineyards, totaling 3854 hectares. Additionally, 122 drying houses were noted.

Orchard Mapping

Following the successful capture of vineyards, Alcis' GIS technician began a similar exercise in February 2015 to locate and capture all orchards. As with the vineyards, Alcis reviewed its archive of imagery to determine the most up-to-date imagery available, and as such, this stage did not require the purchase of any imagery.

Figure 4: Orchards, like vineyards, are readily identifiable through their well-defined structure and texture meaning they can be observed throughout the year.

Results showed that there were more than 14,000 contiguous areas of orchards, totaling nearly 7,500 hectares.

Meteorological Data Processing

Alcis' creation of semi-automated processes over this period allowed us to efficiently acquire, process and output meteorological map products. These include those related to precipitation and temperature, and a comparison of each with long term averages. The outputs are

generated on a bi-weekly basis. The products can be accessed on Alcis' cloud area, set up for RADP-N, through the link below.
http://bit.ly/1Imoj4L

Quarter Three (Year Two)

Orchard Boundary Completion
Following the QA of the orchard dataset, it was confirmed that the final number of contiguous areas of orchards within RADP-N districts was 14,984, totaling 7,468 hectares. This contrasted with the FAO dataset as follows:

Areas of Orchards Comparison		
Source	**Hectares**	**Polygons**
FAO orchard only	3,831	862
FAO mixed agriculture and orchard	10,437	1,524
Alcis	7,468	14,984

Poppy Study
To assist the assessment of poppy cultivation within the RADP-N districts and provinces of interest, and develop a sense of the baseline conditions before RADP-N activities commenced, 18 1km squares were carefully selected. These needed to meet a number of criteria: *1)* proximity to historic poppy cultivation areas; *2)* proximity to RADP-N activities within target districts, and *3)* the availability of suitable high resolution satellite imagery.

The images below show the 18 chosen locations (AOIs) within the target districts of Balkh and Badakhshan, near to RADP-N activities (orange dots), and also shows historic trends of poppy cultivation (from green to red for low to higher poppy probability). Some study areas were specifically chosen to act as 'control' areas, at a significant distance from any RADP-N activities. This will allow trends in poppy cultivation to be better assessed with respect to proximity to RADP-N activities.

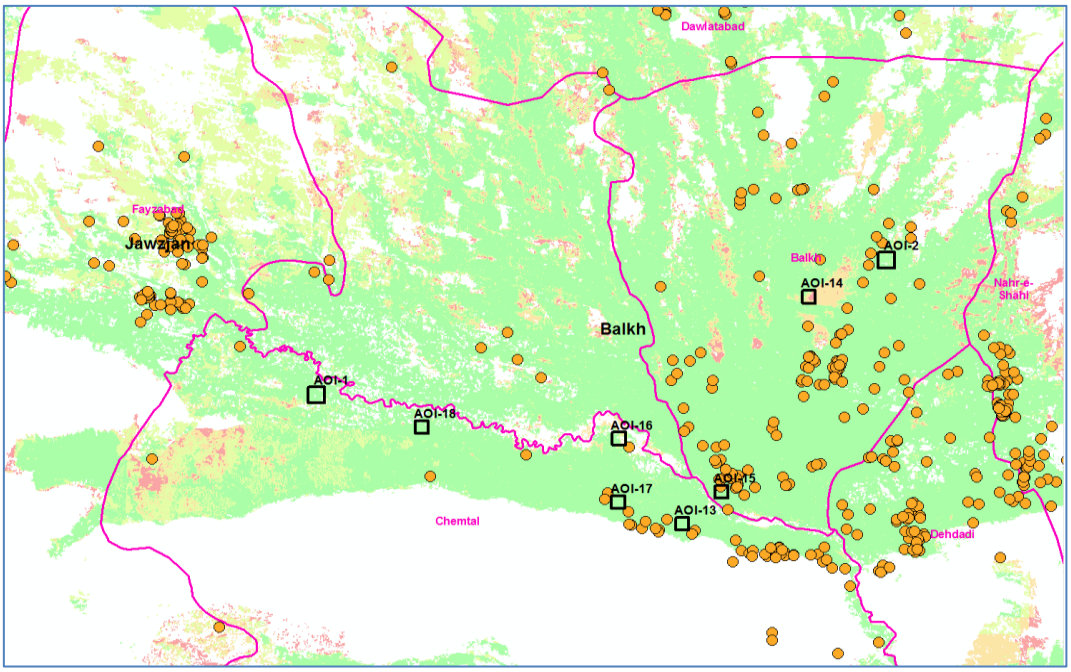


Figure 5: Poppy study site selection in Balkh province (black squares)

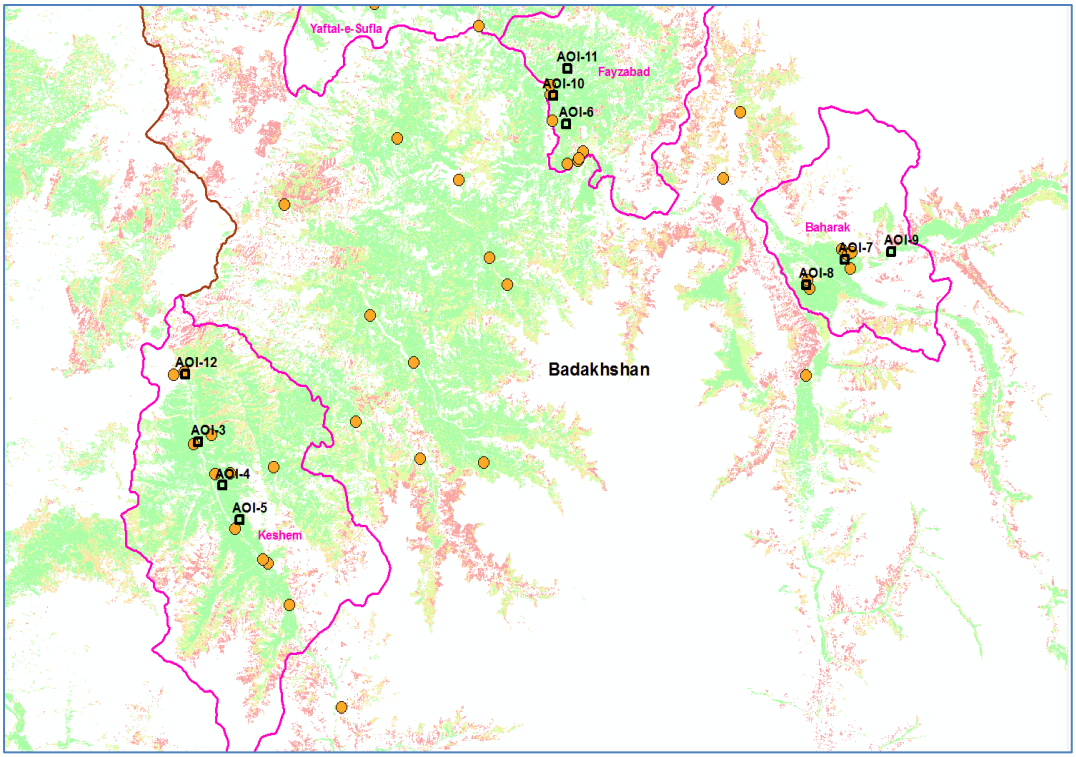


Figure 6: Poppy study site selection in Badakhshan province (black squares)

During this period, the assessment used 2015 imagery, representing a time period before RADP-N activities had been implemented. The results based on 2015 imagery showed a total of just under 30 hectares were being grown, 27 hectares of which was in the Badakhshan districts of Baharak, Faizabad and Kishem, whilst the remainder was in the Balkh districts of Chemtal and Balkh. A second study was conducted in the next quarter, using 2016 imagery.

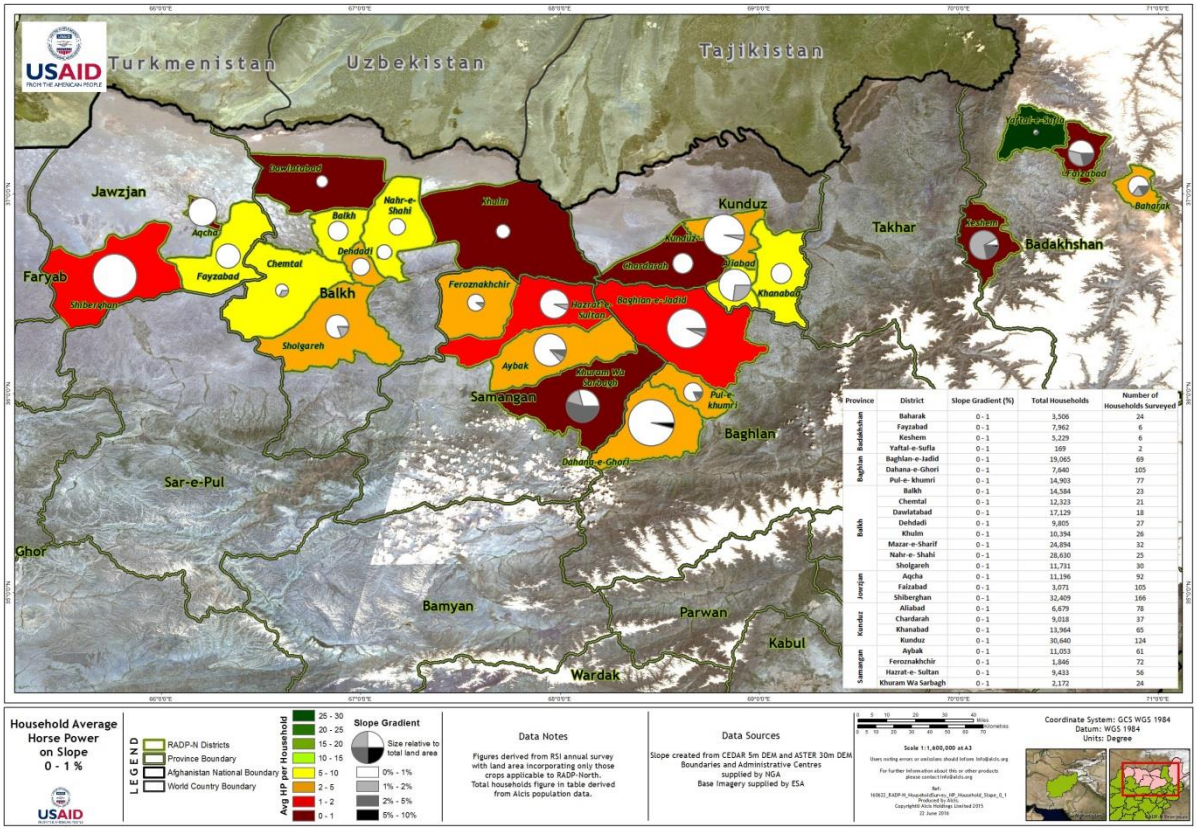
A summary of the results is shown in figure 7.

Area of Poppy Fields Within Study Areas, 2015 and 2016				
Research Site	**Province**	**District**	**2015 Poppy (Ha)**	**2016 Poppy (Ha)**
RS-7	Badakhshan	Baharak	12.42	0.42
RS-8			4.74	0.83
RS-9			1.78	1.57
RS-6		Faizabad	0.00	0.00
RS-10			0.29	0.00
RS-11			0.00	0.00
RS-3		Kishem	0.44	0.08
RS-4			4.80	3.61
RS-5			2.32	0.61
RS-12			0.21	1.68
Total:			***27.00***	***8.79***
RS-2	Balkh	Balkh	0.00	0.00
RS-14			0.00	0.00
RS-15			0.00	0.00
RS-1		Chimtal	0.07	13.86
RS-13			0.00	0.00
RS-16			0.00	0.00
RS-17			0.00	0.62
RS-18			2.58	16.90
Total:			***2.65***	***31.38***
Grant Total:			**29.65**	**40.17**

Figure 7: Area of poppy fields within study areas

Support to Wheat Value Chain for Mapping of Farm Power and Slope Gradient

The assessment of use of different methods for generating farm power (oxen and tractors) was conducted, resulting in the preparing of a number of map products and statistics, as exemplified in figure 8.



Province	District	Slope Gradient (%)	Total Households	Number of Households Surveyed
Badakhshan	Baharak	0 - 1	3,506	24
	Fayzabad	0 - 1	7,962	6
	Keshem	0 - 1	5,229	6
	Yaftal-e-Sufla	0 - 1	169	2
Baghlan	Baghlan-e-Jadid	0 - 1	19,065	69
	Dahana-e-Ghori	0 - 1	7,640	105
	Pul-e- khumri	0 - 1	14,903	77
Balkh	Balkh	0 - 1	14,584	23
	Chemtal	0 - 1	12,323	21
	Dawlatabad	0 - 1	17,129	18
	Dehdadi	0 - 1	9,805	27
	Khulm	0 - 1	10,394	26
	Mazar-e-Sharif	0 - 1	24,894	32
	Nahr-e- Shahi	0 - 1	28,630	25
	Sholgareh	0 - 1	11,731	30
Jowzjan	Aqcha	0 - 1	11,196	92
	Faizabad	0 - 1	3,071	105
	Shiberghan	0 - 1	32,409	166
Kunduz	Aliabad	0 - 1	6,679	78
	Chardarah	0 - 1	9,018	37
	Khanabad	0 - 1	13,964	65
	Kunduz	0 - 1	30,640	124
Samangan	Aybak	0 - 1	11,053	61
	Feroznakhchir	0 - 1	1,846	72
	Hazrat-e- Sultan	0 - 1	9,433	56
	Khuram Wa Sarbagh	0 - 1	2,172	24

Figure 7: Support to the assessment of use of different farm power methods and total power available against slope gradient categories was provided to wheat value chain

Quarter Four, (Year Two)

2016 Poppy Study

During this period, a second poppy study was conducted, comparing the results of what was seen in 2015 imagery, before RADP-N activities had been implemented, with those from 2016 imagery, when RADP-N had been conducting different activities on the ground. The results of the assessment are shown in figure 7. The results indicated that whilst Badakhshan has seen something of a decrease in poppy cultivation, Balkh has seen a significant increase. Interestingly, Research Sites 1 and 18 in Balkh are further away from RADP-N activities.

The general increases in Balkh have been reported elsewhere, and can be seen outside of the research site areas even in lower resolution satellite images. In Badakhshan, at least two of the research sites (#7 and #8), which showed a reduction in poppy cultivation, are in close proximity to RADP-N activities that have been focused on increasing production and quality of dried fruits and nuts. This is shown in figure 9.

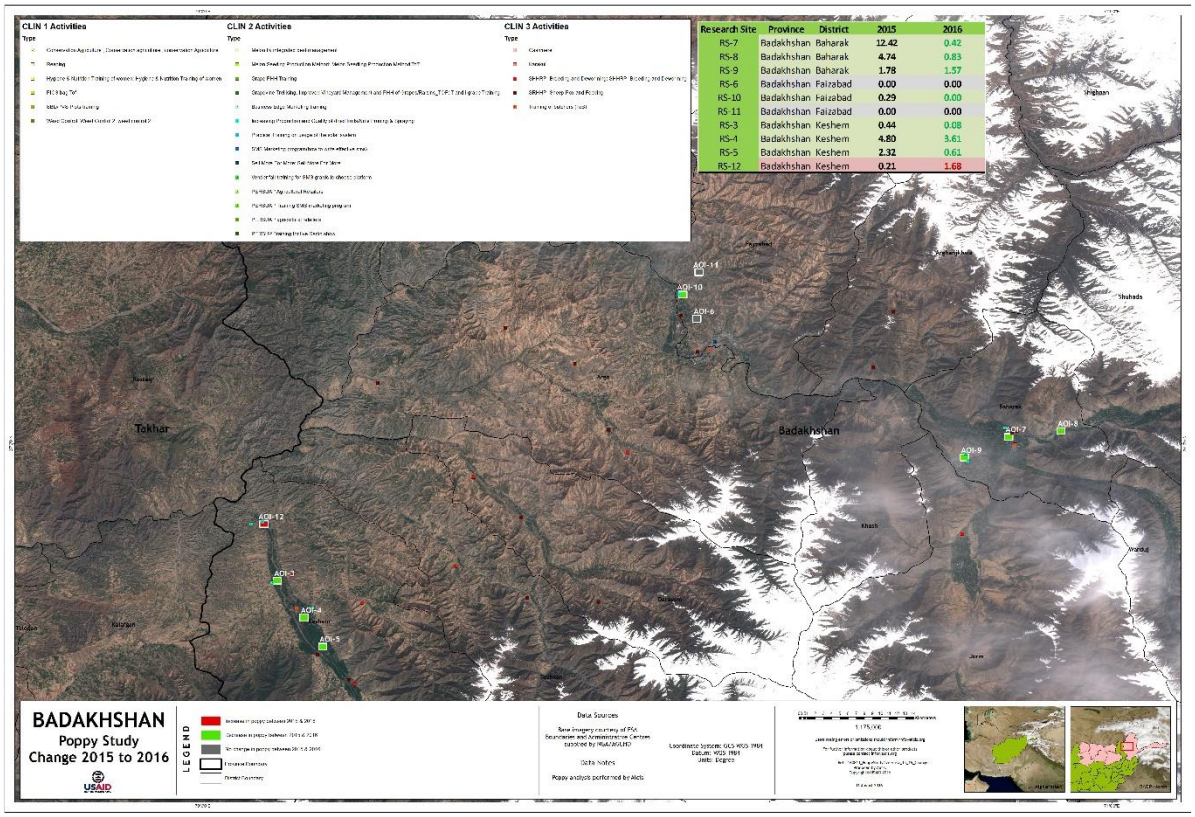


Figure 8: Poppy Change 2015-2016 in Badakhshan

The work to date has shown the powerful means to independently monitor what is happening on the ground at regular time intervals using high resolution satellite imagery. It points the way to a method of continuous assessment of RADP-N activities, and possible evaluation of their impact on poppy cultivation. The intention is to conduct a similar study in spring/summer 2017 to review how the scenario on the ground may have changed. Additionally, there may be scope to increase the scale of the work, to look more widely across RADP-N districts and provinces, and/or use higher numbers of 1km sample areas.

Support to Wheat Value Chain

During this period, additional mapping support for wheat value chain was provided, based on the household survey data, mapping the percentage of households with access to some form of farm based power

Meteorological Data Processing

Alcis continues to acquire, process and output meteorological map products. These include those related to precipitation and temperature, and a comparison of each with long term averages. The outputs are generated on a bi-weekly basis. The products can be accessed on Alcis' cloud area, set up for RADP-N, through the link below. An example output is shown in figure 10.

http://bit.ly/1Imoj4L

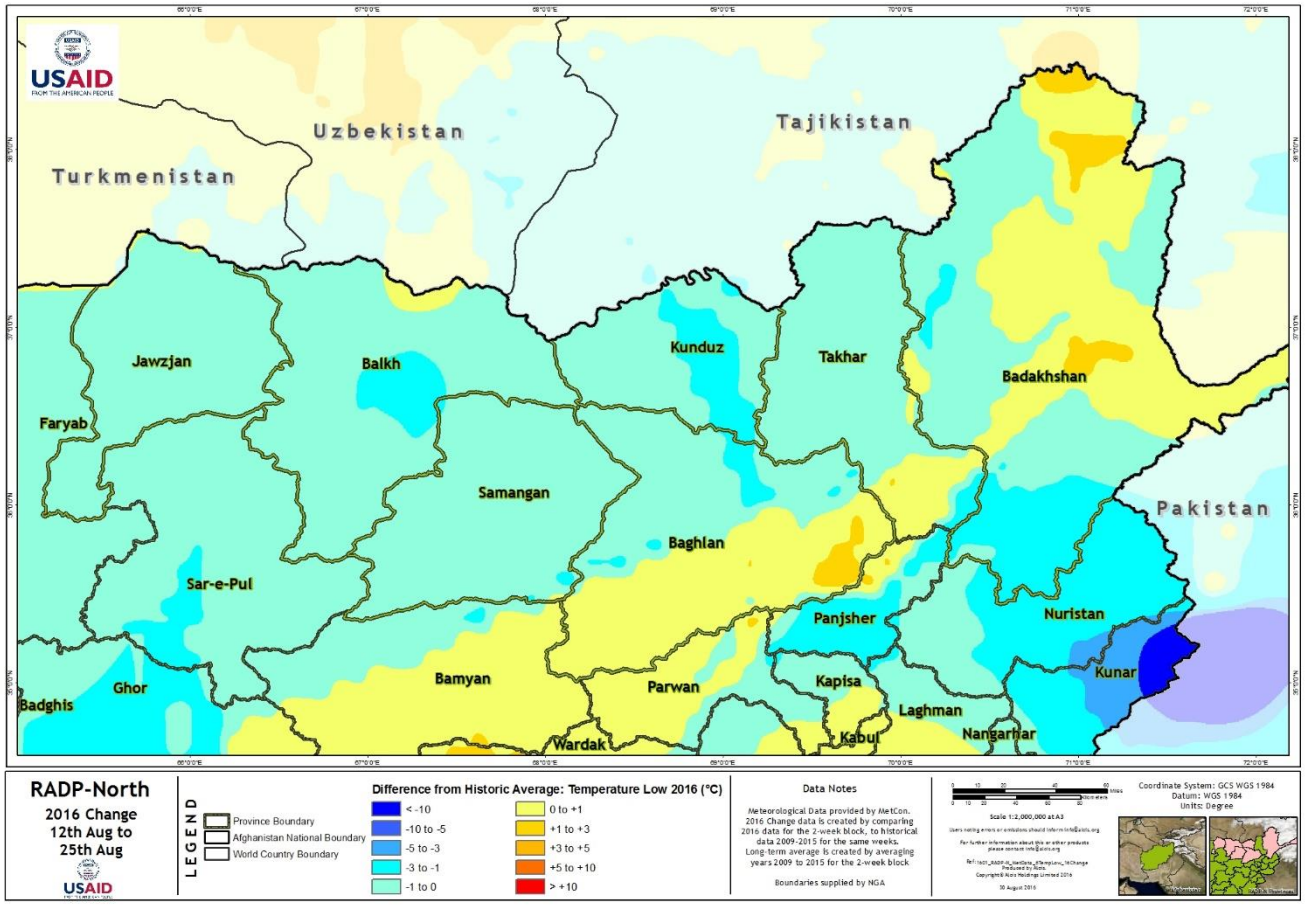
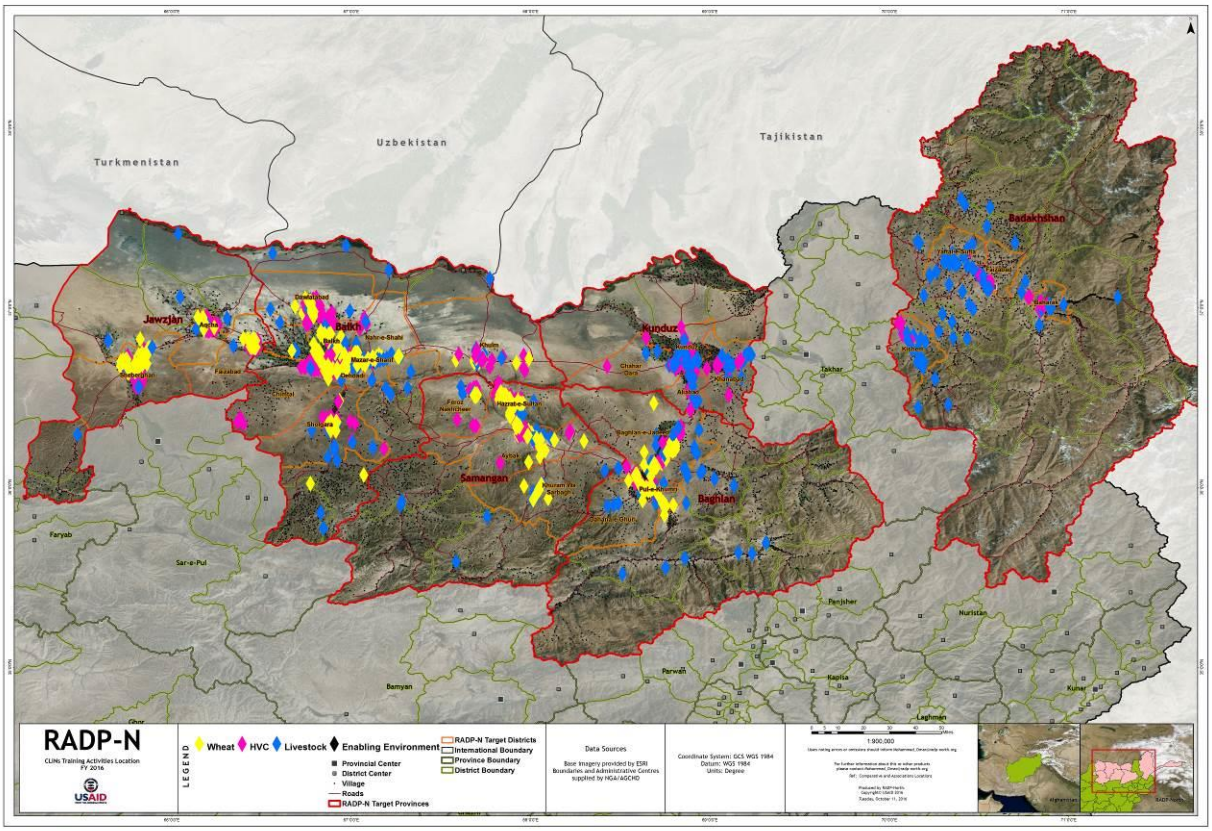


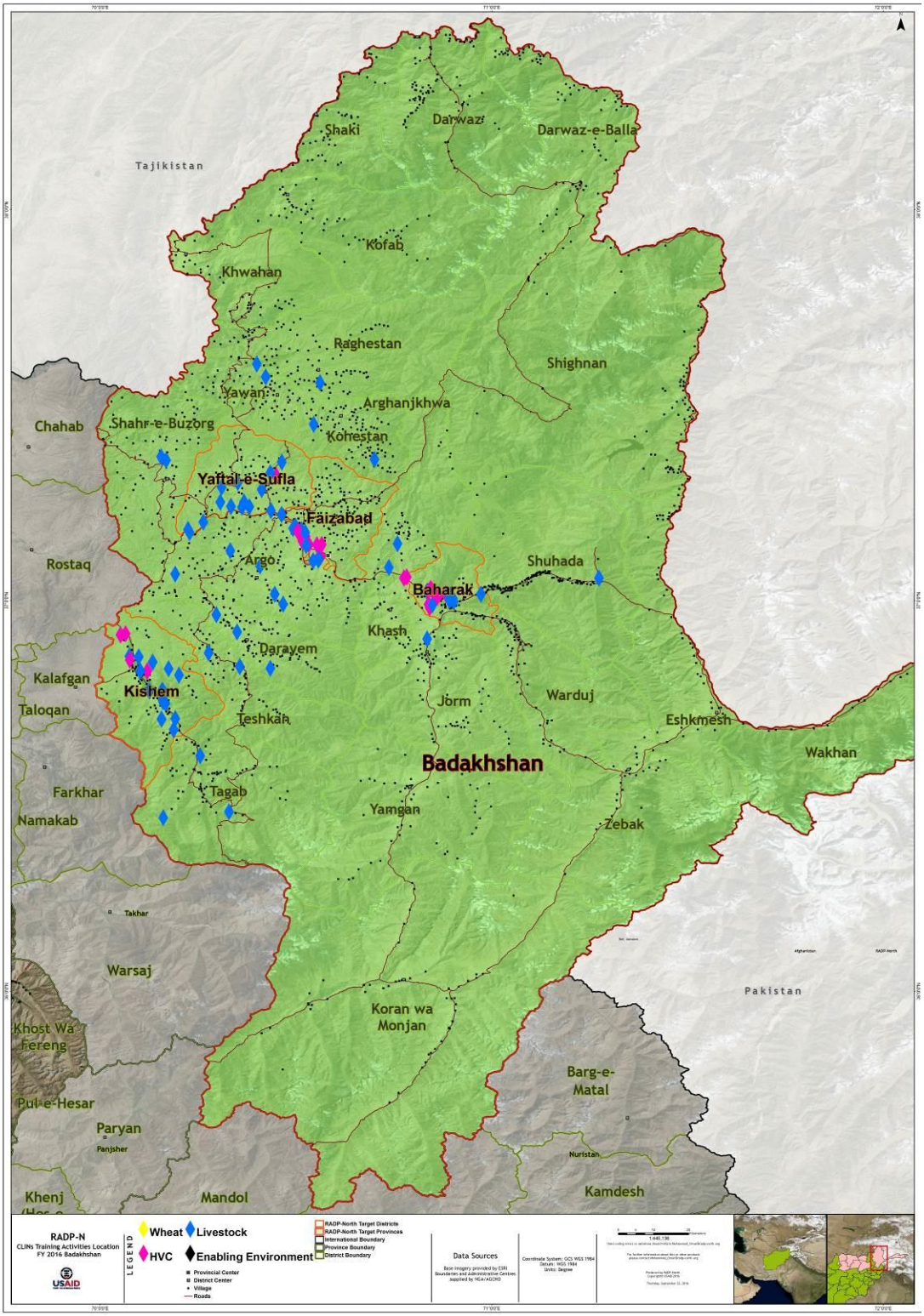
Figure 9: Comparison of minimum temperature values for 12th-25th August with historic average

RADP-N Activity Map

The following maps reflect RADP-N's activities by province, implemented during the year two in RADP-N's target areas (Badakhshan, Baghlan, Balkh, Jawzjan, Kunduz, and Samangan provinces):



RADP-N's activity locations in year two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Kohestan
Yaftal-e-Sufla
Faizabad
Rostaq
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Shuhada
Baharak
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Kalafgan
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Jorm
Warduj
Teshkan
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Wakhan
Badakhshan
Farkhar
Tagab
Yamgan
Namakab
Zebak
Takhar
Warsaj
Pakistan
Koran wa Monjan
Khost Wa Fereng
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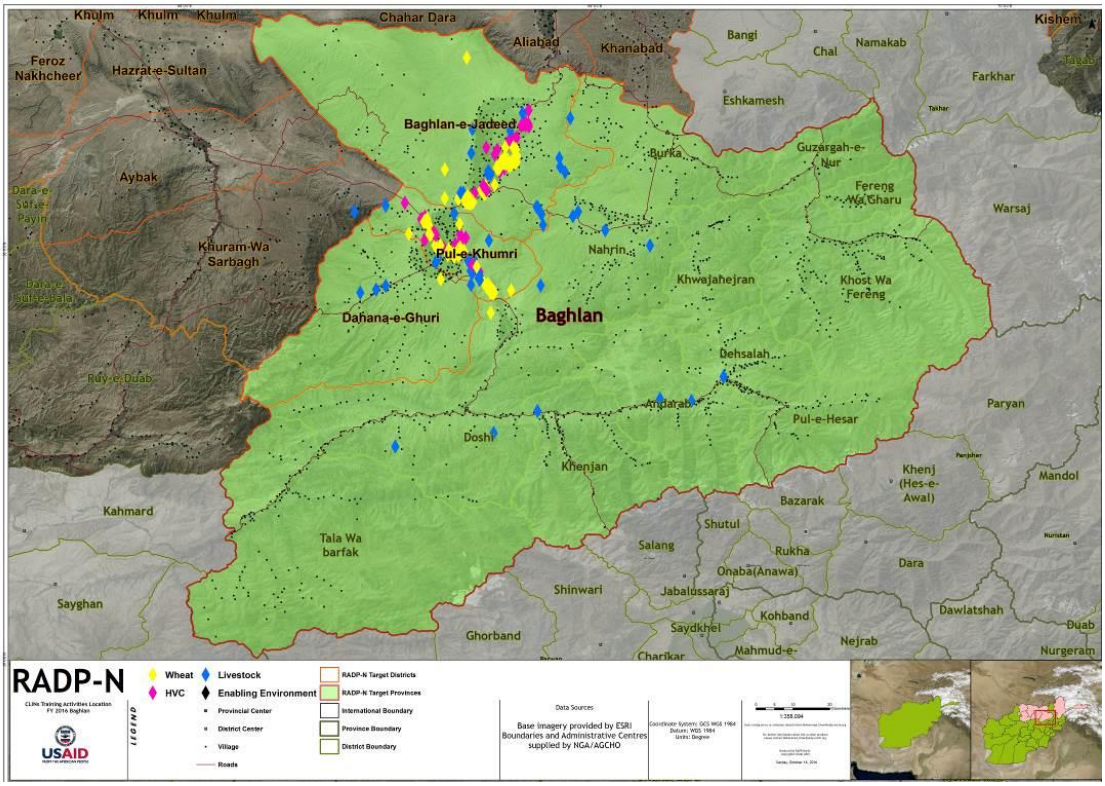
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Farkhar
Eshkamesh
Baghlan-e-Jadeed
Burka
Guzargah-e-Nur
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Warsaj
Khuram Wa Sarbagh
Pul-e-Khumri
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Sayghan
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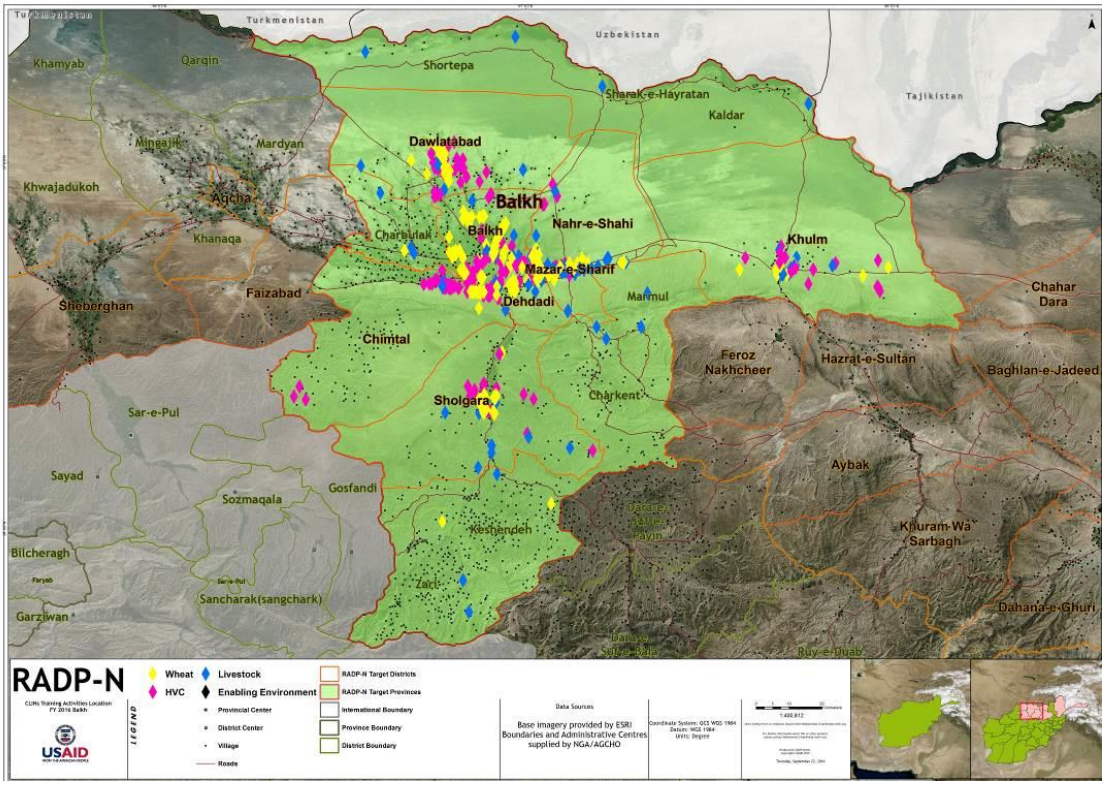
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Nahr-e-Shahi
Khulm
Mazar-e-Sharif
Chahar Dara
Faizabad
Dehdadi
Mamul
Sheberghan
Chimtal
Feroz Nakhcheer
Hazrat-e-Sultan
Baghlan-e-Jadeed
Sar-e-Pul
Sholgara
Charkent
Aybak
Sayad
Gosfandi
Sozmaqala
Keshendeh
Khuram Wa Sarbagh
Bilcheragh
Zari
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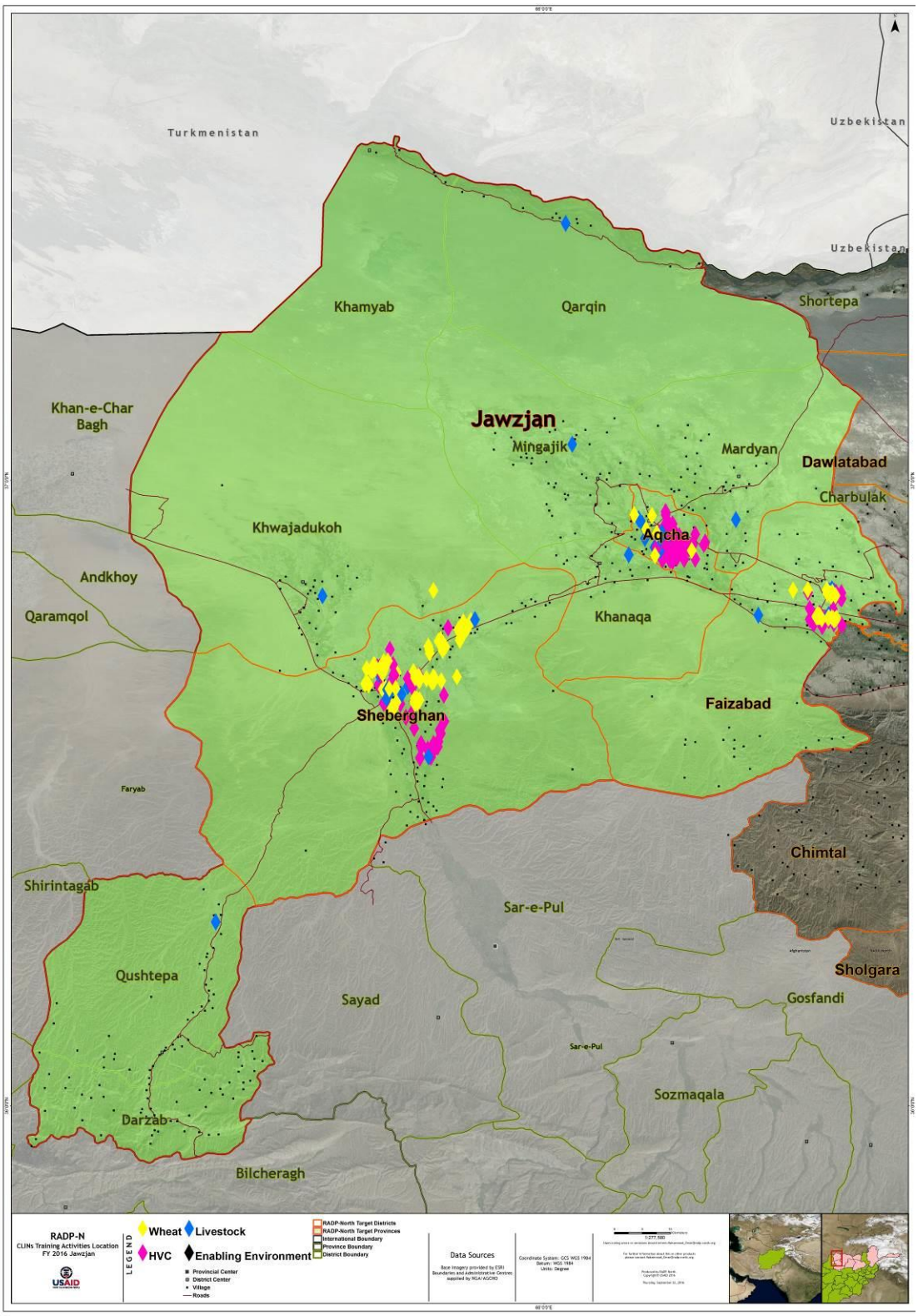
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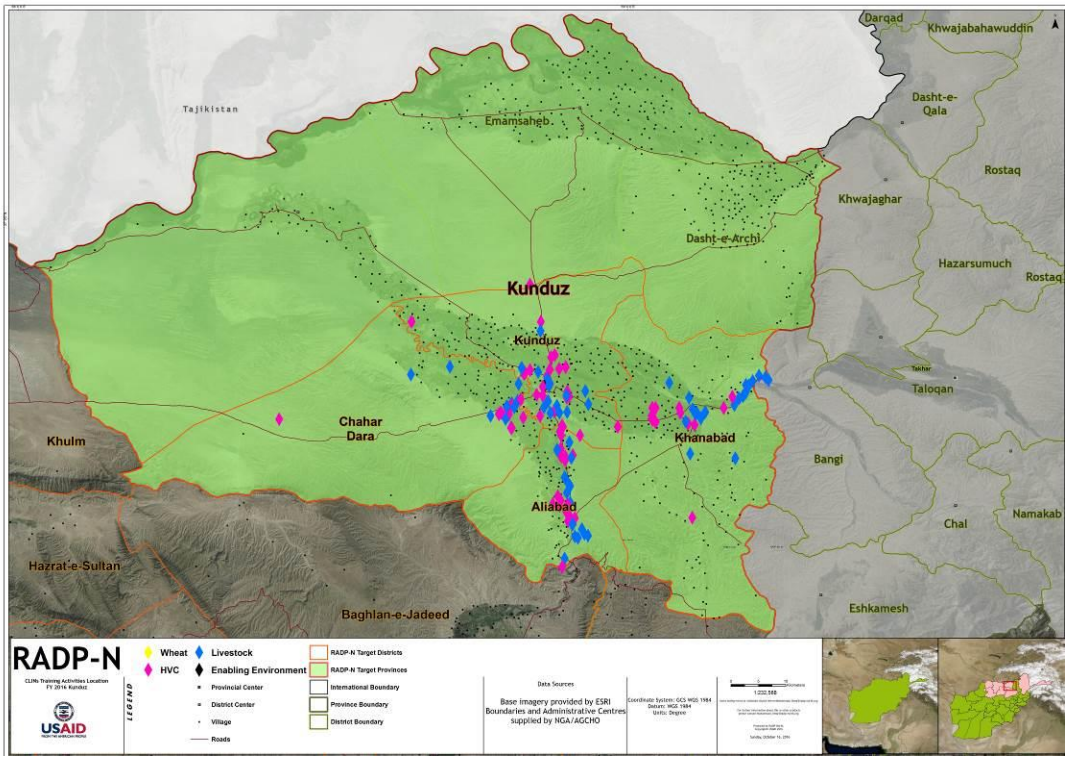
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Rostaq
Kunduz
Kunduz
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Chahar Dara
Khanabad
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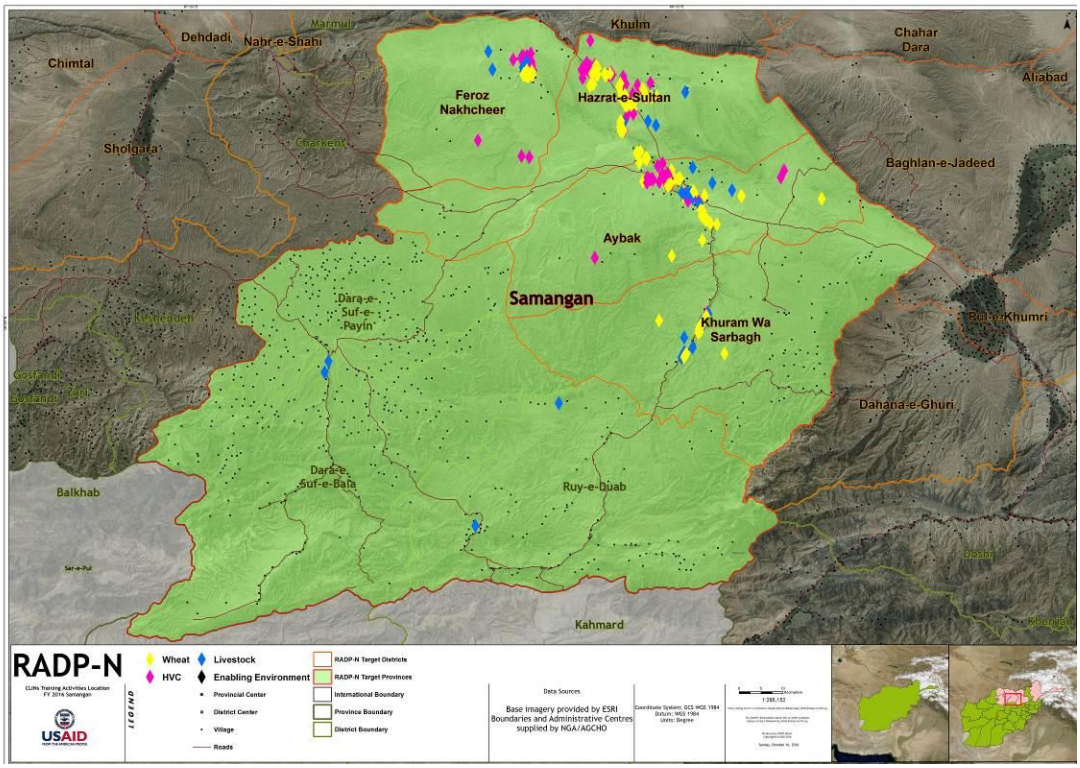
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Chimtal
Aliabad
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Hazrat-e-Sultan
Sholgara
Charkent
Baghlan-e-Jadeed
Aybak
Samangan
Dara-e-Suf-e-Payin
Khuram Wa Sarbagh
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Livestock
Enabling Environment
Provincial Center
District Center
Village
Roads
RADP-N Target Districts
RADP-N Target Provinces
International Boundary
Province Boundary
District Boundary
Data Sources
Base imagery provided by ESRI
Boundaries and Administrative Centres supplied by NGA/AGCHO
Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree
1:266,152

PROGRAM APPRAISAL

Evaluations

Annual Farmer Survey

In the annual period, an annual farmer survey was carried out in order to evaluate the outcomes of the RADP-N program against its stated annual farmer- and household-level indicators. Sample: FY'15 annual survey results were drawn from 3,033 households in 34 districts across 5 Afghan provinces that had RADP-N activities in FY'15 (Baghlan, Balkh, Jawzjan, Kunduz and Samangan). Program participants were drawn from 22 districts in these provinces where RADP-N works, while farmer households from 12 districts in the provinces made up the comparison group. RADP-N participants were selected in a stratified manner by value chain.

Main Findings:

Overall, the findings from the annual survey found overall favorable agricultural harvests in the fiscal year for treatment and comparison groups. This was in step with third party sources such as Asian Development Bank (ADB) and World Bank (WB), both of which reported that agricultural sector commodities saw growth due to overall favorable climactic growing conditions in 2015, and yielded, "good harvests of wheat, fruit and vegetables."[29]

Crop Production and Productivity

- Grapes: Overall per-hectare yields (productivity) for grapes increased by 85% for comparison farmers and 125% for treatment farmers.
    - RADP-N activities focused on pruning, Integrated Pest Management (IPM) and post-harvest handling, suggesting that these improved production practices improved overall yields.
- Melons: Per-hectare yields for melons increased by 50% for treatment versus 14% for comparison farmers.
    - Results suggest that efforts towards melon fly control improved yields.
- Wheat: Per-hectare yields increased for 50% by treatment versus 39% for comparison groups.
    - Results suggest that pest management and a strong emphasis on weed control (including backpack sprayers) were successful in improving per-hectare wheat yields.
- Livestock: productivity results were mixed for livestock, and not attributable to RADP-N.

Increases in Household agricultural income

- Overall, agricultural incomes rose for treatment farmers (114%), while comparison farmer incomes also rose, but by a lower margin (30%).
- Within each value chain, large gains were seen over the baseline in terms of incomes:
    - Wheat: 122% increase for treatment, 14% for comparison
    - Melons 89% increase for treatment and 27% for comparison.
    - Grapes was also very positive (118% increase in income for treatment and 34% increase for comparison).
- The results show that the RADP-N program not only increased per-hectare yields, but improved the per-kg price for participating farmers, illustrating product quality improvement

[29] www.adb.org/countries/afghanistan/economy

- Income from livestock and livestock products showed lower rates of change over the baseline, at least in terms of actual livestock sold and livestock products sold for cash. However, changes in herd size were very positive, increasing household assets. If livestock owners choose to sell these livestock, the realized income gains will be seen in subsequent years. However, because RADP-N activities focused on cashmere and karakul sales, it is unlikely that these improvements are attributable to RADP-N.

Commodity Sales by Participating RADP-N Farmers Totaled More Than $8 Million in Year One:

- Total cashmere and karakul sales were $77,126 USD and $32,703, respectively
- Total grape sales were $632,973
- Total melon sales were $4,791,632
- Total wheat sales were $2,673,588 (45% of participating farmers sold wheat)

Technology Uptake by Value Chain

- Grapes
  - The greatest usage of technology types by treatment farmers was for pruning (70%) and packaging in wooden crates (92%). Both were focuses of RADP-N, and can be considered attributable to the program.
- Melons
  - The largest gains for the treatment group are related to the use of a backpack sprayer-- from 22% at the baseline up to 70% at the end of year one.
  - Melon fly control using melon bags was also increased, and much more prevalent among treatment (46%) versus control (14%), and seedlings to produce melons (33% for treatment versus 19% for comparison group).
- Wheat
  - The largest gain in technology usage was in weeding—which was a large focus of the program: weeding was reported by 85% of the treatment farmers, compared to 46% of comparison wheat farmers.
- Livestock
  - Both cashmere and karakul, the large focuses of increased livestock technology, show differences between treatment and comparison groups.
  - A total of 29% of treatment farmers indicated that they used technology for washing and drying karakul pelts, and 20% used technology for cashmere, include shearing and combing.
  - Just 3% of the comparison group said they used technology for their karakul pelts, and just 1% of cashmere farmers said they used technology for their cashmere.

Household Food Security

To measure food security, RADP-N adopted the standard World Food Program (WFP) methodology for a Food Consumption Score (FCS), categorizing people into “poor”, “borderline” and “acceptable”.

- Both comparison and treatment groups improved; fewer people as compared to the baseline fell into the “poor” category.
- At the baseline, 58% of treatment group was in “acceptable” category, compared to 82% at the conclusion of FY’15.
- At the baseline, 73% of the comparison group was in “acceptable” category, compared to 77% at the conclusion of FY’15.

Assessments

Monitoring

To date, more than 12 activity-level recommendations have been incorporated into activities to improve their efficacy and outcomes. In year two, both external monitors as well as monitors internal to the DAI M&E team undertook visits to all provinces and districts where RADP-N activities took place. Activities were reviewed in several key areas, including:

- Verification of on-the-ground activities versus concept notes
- Financial monitoring
- Environmental monitoring
- M&E compliance
- Overall quality

Monitors provide evidence-based feedback and recommendations to program management in an effort to improve program and activity-level performance. All monitoring visits have a full report (approximately six pages, with time-stamped photos), which are reviewed by program managers of relevant teams (wheat, HVC, livestock and enabling environment).
The following tables summarize the number of monitoring visits by province, district and value chain. In total, 302 monitoring visits were made; this was an average of 25 per month, or more than one for each working day.

Year Two Activity-Level Monitoring Visits (Internal and External)					
	Wheat	**HVC**	**Livestock**	**Enabling Environment**	**Grand Total**
Internal (DAI)	51	62	57	5	**175**
External (RSI)	59	33	31	4	**127**
Grand Total	**110**	**95**	**88**	**9**	**302**

Number of Year Two Activity-Level Monitoring Visits by District and Province			
Province/District	**Internal (DAI)**	**External (RSI)**	**Grand Total**
Badakhshan	**41**	**1**	**42**
All target districts (Radio shows)	6		6
Baharak	5		5
Faizabad	23	1	24
Kishem	5		5
Yaftal-e-Sufla	2		2
Baghlan	**3**	**25**	**28**
All target districts (Radio shows)		1	1
Baghlan-e-Jadeed	1	7	8
Pul-e-Khumri	2	16	18
Pul-e-Khumri		1	1
Balkh	**72**	**41**	**113**
All target districts (Radio shows)	2	1	3
Balkh	7	11	18
Chimtal	3	3	6
Dawlatabad	1	1	2

Dehdadi	13	6	19
Khulm	5	2	7
Kishem	2		2
Mazar-e-Sharif	21	7	28
Nahr-e-Shahi	11	6	17
Sholgara	7	4	11
Jawzjan	**27**	**26**	**53**
All target districts (Radio shows)	2	3	5
Aqcha	4	2	6
Faizabad	1	4	5
Sheberghan	20	17	37
Kunduz		**15**	**15**
Ali Abad		2	2
All target districts (Radio shows)		3	3
Khan Abad		3	3
Kunduz		7	7
Samangan	**32**	**19**	**51**
All target districts (Radio shows)	1		1
Aybak	14	11	25
Feroz Nakhcheer	5	4	9
Hazrat-e-Sultan	11	2	13
Khuram Wa Sarbagh	1	2	3
Grand Total	**175**	**127**	**302**

Lessons Learned

- Apart from large herds managed by nomadic people largely governed by traditional methods, small ruminant production in peri-urban areas is generally marginal. Small ruminant herders have relatively small flocks (20 to 100 animals), are mostly illiterate, have limited access to production assets, and are risk averse. Complex, overly ambitious interventions have low probability of success.
- Intensive, extended business development facilitation can align the incentives of stakeholders within the value chain and create demand for a product.
- There is a lack of incentives and infrastructure to encourage farmers to join organizations to aggregate commodities, and achieve collective sales.
- Training at the village level results in higher participation by farmers. Trainees are also more receptive to information when being taught by people from their area rather than from more distant communities.
- Lessons learned from the first two years of the weed control training activities found that the agricultural input supply market in northern Afghanistan still offers inferior equipment.

COLLABORATION WITH GIROA, OTHER DONOR AGENCIES AND OTHER USAID PROJECTS

Please refer to Annex IV for a complete list of all meetings RADP-N has had with the Government of the Islamic Republic of Afghanistan (GIRoA), other donor agencies and other USAID-funded projects between October 1, 2015 and September 30, 2016.

MANAGEMENT AND ADMINISTRATIVE ISSUES

Personnel

The following table lists the permanent personnel changes that occurred between October 1, 2015 and September 30, 2016.

NAME	IP	STTA/ LTTA	POSITION	ARRIVAL DATE	DEPARTURE DATE
Expatriate Staff					
Steve Atkinson	ACDI/VOCA	LTTA	Team Lead	11/20/2015	
Peter How	JDA	STTA	Project Director	11/22/2015	12/11/2015
Peter How	JDA	STTA	Project Director	1/31/2016	2/12/2016
Bob Hedlund	JDA	STTA	President JDA		4/15/2016
T.J. Bradley	DAI	STTA	Project Associate	3/15/2016	4/29/2016
Peter How	JDA	STTA	Project Director	4/9/2016	4/29/2016
Peter How	JDA	STTA	Project Director	7/10/2016	7/22/2016
T.J. Bradley	DAI	LTTA	M&E and Communications Advisor	7/15/2016	
Grace How	JDA	STTA	Facilitation Training Consultant	5/8/2016	5/18/2016
John Buckley	ACDI/VOCA	STTA		5/16/2016	7/16/2016
Ali El-Saied	ACDI/VOCA	STTA		5/25/2016	6/16/2016
John Buckley	ACDI/VOCA	STTA		8/16/2016	
Andrew Philip	ACDI/VOCA	STTA		8/29/2016	10/30/2016
Patrick Hughes	ACDI/VOCA	STTA		9/4/2016	10/30/2016
National Staff					
[redacted]	DAI	STTA	Technical Coordinator		10/5/2015
[redacted]	DAI	LTTA	Gender Outreach Specialist	10/6/2015	6/20/2016
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015

NAME	IP	STTA/ LTTA	POSITION	ARRIVAL DATE	DEPARTURE DATE
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	STTA	Enumerator		10/8/2015
[redacted]	DAI	LTTA	Monitoring and Evaluation Specialist	10/11/2015	
[redacted]	DAI	STTA	Technical Coordinator		11/7/2015
[redacted]	DAI	STTA	Administrative Officer		11/5/2015
[redacted]	DAI	LTTA	B6 Driver		11/1/2015
[redacted]	DAI	LTTA	Grants Technical Manager		11/12/2015
[redacted]	DAI	LTTA	Finance Manager		12/7/2015
[redacted]	DAI	LTTA	B6 Driver		12/10/2015
[redacted]	DAI	STTA	Rapporteur	11/22/2015	11/29/2015
[redacted]	ACDI/VOCA	STTA	Marketing Value Chain Trainer	11/29/2015	1/7/2016
[redacted]	ACDI/VOCA	STTA	Marketing Value Chain Trainer	11/29/2015	1/7/2016
[redacted]	ACDI/VOCA	STTA	Marketing Value Chain Trainer	11/29/2015	1/7/2016
[redacted]	ACDI/VOCA	STTA	Marketing Value Chain Trainer	11/29/2015	1/7/2016
[redacted]	ACDI/VOCA	STTA	Marketing Value Chain Trainer	11/29/2015	1/7/2016
[redacted]	ACDI/VOCA	STTA	Marketing Value Chain Trainer	11/29/2015	1/7/2016
[redacted]	ACDI/VOCA	STTA	Marketing Value Chain Trainer	11/29/2015	1/7/2016
[redacted]	ACDI/VOCA	STTA	Marketing Value Chain Trainer	12/5/2015	1/15/2016
[redacted]	ACDI/VOCA	STTA	Marketing Value Chain Trainer	12/5/2015	1/15/2016
[redacted]	ACDI/VOCA	STTA	Marketing Value Chain Trainer	12/6/2015	1/14/2016
[redacted]	ACDI/VOCA	STTA	Marketing Value Chain Trainer	12/6/2015	1/14/2016
[redacted]	ACDI/VOCA	STTA	Marketing Value	12/6/2015	1/14/2016

NAME	IP	STTA/ LTTA	POSITION	ARRIVAL DATE	DEPARTURE DATE
			Chain Trainer		
[redacted]	ACDI/VOCA	STTA	Marketing Value Chain Trainer	12/6/2015	1/14/2016
[redacted]	DAI	LTTA	Finance Assistant Administrative	1/5/2016	
[redacted]	DAI	LTTA	Provincial Implementation Manager		1/7/2016
[redacted]	DAI	LTTA	B6 Driver	1/13/2016	
[redacted]	DAI	LTTA	Procurement & Grants Market Research Assistant	1/13/2016	
[redacted]	DAI	STTA	IT Intern	2/17/2016	6/16/2016
[redacted]	DAI	STTA	Procurement & Grants Intern	2/18/2016	6/17/2016
[redacted]	DAI	STTA	English Language Training & Risk Management Intern	2/21/2016	6/20/2016
[redacted]	DAI	LTTA	Provincial Implementation Manager	2/28/2016	
[redacted]	DAI	LTTA	Dari Translator		2/29/2016
[redacted]	DAI	LTTA	Director of Finance	3/6/2016	
[redacted]	DAI	LTTA	Business Enabling Environment Advisor	4/3/2016	
[redacted]	DAI	LTTA	Senior Grants Specialist		4/9/2016
[redacted]	DAI	STTA	Environmental Compliance Intern	4/17/2016	8/16/2016
[redacted]	DCA	LTTA	Business value chain coordinator.	4/19/2016	
[redacted]	DCA	LTTA	Communication and reporting coordinator.	4/19/2016	
[redacted]	DAI	LTTA	Program Administrative Specialist		4/19/2016
[redacted]	DAI	LTTA	Grants Specialist	4/20/2016	
[redacted]	DAI	STTA	Gender Outreach Intern	4/25/2016	8/24/2016
[redacted]	DAI	STTA	Gender Outreach Intern	4/25/2016	8/24/2016
[redacted]	DAI	LTTA	Deputy Chief of Party		4/30/2016
[redacted]	DAI	LTTA	Director of	5/1/2016	

NAME	IP	STTA/ LTTA	POSITION	ARRIVAL DATE	DEPARTURE DATE
			Government Relations		
[redacted]	DAI	LTTA	Translator	5/10/2016	
[redacted]	DAI	LTTA	Program Administrative Specialist	5/15/2016	
[redacted]	DAI/JDA	STTA	Contract harvesting Field Technician	5/19/2016	8/18/2016
[redacted]	DAI/JDA	STTA	Contract harvesting Field Technician	5/19/2016	8/18/2016
[redacted]	DAI/JDA	STTA	Contract harvesting Field Technician	5/19/2016	8/18/2016
[redacted]	DAI/JDA	STTA	Contract harvesting Field Technician	5/19/2016	8/18/2016
[redacted]	DAI/JDA	STTA	Video Light and Sound Specialist	5/29/2016	7/28/2016
[redacted]	DAI/JDA	STTA	Video Production and Camera Specialist	5/29/2016	7/28/2016
[redacted]	DAI	STTA	HR Intern	6/12/2016	
[redacted]	DAI	STTA	Communications Intern	6/12/2016	
[redacted]	ACDI/VOCA	STTA	Short Term Translator	6/12/2016	8/11/2016
[redacted]	DAI	LTTA	Procurement Specialist		6/20/2016
[redacted]	DAI	LTTA	Communications Officer		6/20/2016
[redacted]	DAI	LTTA	Senior Procurement Officer	6/21/2016	
[redacted]	DAI	LTTA	Senior Communications Officer	6/21/2016	
[redacted]	DAI	LTTA	Gender Manager	6/21/2016	
[redacted]	DAI	STTA	Finance Intern	6/22/2016	
[redacted]	DAI	STTA	Finance Intern	6/22/2016	
[redacted]	DAI	STTA	Field Monitor	6/26/2016	9/25/2016
[redacted]	DAI	STTA	Field Monitor	6/26/2016	9/25/2016
[redacted]	DCA	LTTA	M&E assistant.	7/1/2016	
[redacted]	DAI	STTA	Grants Administration Assistant	7/11/2016	
[redacted]	DAI	LTTA	Gender Outreach Specialist	7/17/2016	
[redacted]	DAI	LTTA	Procurement		7/27/2016

NAME	IP	STTA/ LTTA	POSITION	ARRIVAL DATE	DEPARTURE DATE
			Specialist		
[redacted]	DAI	LTTA	HR Officer		7/27/2016
[redacted]	DAI	LTTA	Senior HR Officer	7/28/2016	
[redacted]	DAI	LTTA	Security Operations Officer		7/27/2016
[redacted]	DAI	LTTA	Senior Security Operations Officer	7/28/2016	
[redacted]	DAI	LTTA	Senior Procurement Specialist	7/28/2016	
[redacted]	DAI	STTA	Field Monitor	8/4/2016	
[redacted]	DAI	STTA	English Language Training & Risk Management Intern	8/28/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	DAI	STTA	Veterinary Intern	9/4/2016	
[redacted]	DAI	STTA	Veterinary Intern	9/4/2016	
[redacted]	DAI	STTA	Veterinary Intern	9/4/2016	
[redacted]	DAI	STTA	Veterinary Intern	9/4/2016	
[redacted]	DAI	STTA	Veterinary Intern	9/4/2016	
[redacted]	DAI	STTA	Veterinary Intern	9/4/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	DAI	STTA	Agriculture Intern	9/4/2016	
[redacted]	ACDI/VOCA	STTA	Short Term Translator	9/19/2016	9/22/2016
[redacted]	DAI	STTA	Environmental	9/21/2016	

NAME	IP	STTA/ LTTA	POSITION	ARRIVAL DATE	DEPARTURE DATE
			Compliance Assistant		
[redacted]	DCA	LTTA	Local extension worker		3/1/2016
[redacted]	DCA	LTTA	Local extension worker		3/1/2016
[redacted]	DCA	LTTA	Local extension worker		3/1/2016
[redacted]	DCA	LTTA	Local extension worker		3/1/2016
[redacted]	DCA	LTTA	Local extension worker		3/1/2016
[redacted]	DCA	LTTA	Local extension worker		3/1/2016
[redacted]	DCA	LTTA	Regional provincial coordinator		9/1/2016
[redacted]	DCA	LTTA	Regional extension coordinator		9/1/2016
[redacted]	DCA	LTTA	Extension worker		9/1/2016

Adaption of the Activity

N/A

Modifications and Amendments

N/A

ANNEX I: PERFORMANCE INDICATOR TABLE

Please see the attached Excel document to view RADP-N's actual achievements versus targets for its performance indicators.

ANNEX II: ENVIROMENTAL MITIGATION AND MONITORING REPORT

Please see the attached Excel document.

ANNEX III: GRANTS REPORT

Please see the attached Excel document.

ANNEX IV: RADP-N COLLABORATION WITH GIROA, OTHER DONOR AGENCIES AND OTHER USAID PROJECT

Please see the attached pdf document.

ANNEX V: RADP-N TWO PAGER, GENDER, FY2016

Please see the attached pdf document.