

ICAR (IGFRI) and ICARDA Bilateral Agreement

PROJECT 3: SUB PROJECT 2

PROMOTING CACTUS (OPUNTIA FICUS-INDICA) AS DROUGHT RESILIENT FEED RESOURCE UNDER DIFFERENT AGRO-ECOLOGICAL PRODUCTION SYSTEMS ACROSS INDIA

Minutes of the meeting held on the 1st of October 2018 at IGFRI headquarters in Jhansi

Within the collaboration between ICAR (IGFRI) and ICARDA a visit was made by Drs Mounir Louhaichi and Sawsan Hassan to Jhansi from 30 Sept to 01 October 2018.

Following the field visits a meeting took place on the 01 October 2018 between 3 to 4 pm to summarize main activities and plan of work for the upcoming season/year.

The following scientists were present during this meeting:

- Dr Sunil Kumar (Agronomist)
- Dr Misra Asim (Livestock nutritionist)
- Dr Shahid Ahmad (Breeder)
- Dr Vekas Kumar (Agricultural Economist)
- Dr Sawsan Hassan (Forage/Rangeland)
- Dr Mounir Louhaichi (Forage/Rangeland)

Feeding trial

- The small ruminant trial has been completed and published:

Misra AK; Kumar S; Kumar KT; Ahmed S; Palsaniya DR; Ghosh PK; Louhaichi M; Sarker A; Hassan S; Ates S. **2018**. Nutrient intake and utilization in sheep fed opuntia [*Opuntia ficus-indica* (L.) Mill.] in combination with conventional green and dry fodders. *Range Management and Agroforestry* 39 (1): 97-102.

- Dr Misra just completed a second trial on lactating cow using up to 30% cactus in the diet. Soon he will share a first draft of the paper. We should target a different journal this time.
- Currently there is no plan to conduct another feeding trial. This may change in case we come up with a new idea.
- Currently the institute is feeding cactus to its cattle. It was suggested to make a video illustrating all the steps from harvesting pads, chopping with hay and feeding animals. This should be ready by the end of November.



Action points:

- Dr Misra Kumar to arrange for making video and sharing it with ICARDA by the end of November 2018.
- Team member should think of potential feeding trial which is needed to fill any gap related to cactus as a fodder crop.

Agronomy trial

- One ISI paper led by Dr Sunil was submitted for publication:
Kumar, S., Palsaniya, D. R., Kiran Kumar, T., Mishra, A. K., Ahmad, S., Ghosh, P. K., Sarker, A., Ates, S., Louhaichi, M., and Hassan, S. (**submitted**). Prospects of edible spineless cactus (*Opuntia ficus-indica*) as non-conventional fodder in central Indian Semi-Arid Tropics. [Current Science](#)
- The agronomic trial which started in 2016 is still ongoing. Data collection is expected to take place this fall and during the upcoming season.



- Based on the observation made during the field visit, it was interesting to notice the amazing growth of both cactus and adjacent cowpea. It was suggested to implement an intercropping trial using cactus x cowpea. This trial is scheduled for next July 2019.



Action points:

- Dr Sunil to continue data collection for the agronomic trial
- Dr. Sunil to initiate a new intercropping trial starting (cactus x cowpea) in July 2019

Field days

- Based on the agreement between IGFRI and ICARDA, three field days should take place in a calendar year.
 - o It was agreed to hold the first field day on 01 November 2018 at the station
 - o A second field day will be organized at farm level before the end of the year (31/12/2018)
 - o The 3rd field day will be organized during the next visit of Dr Sawsan to IGFRI which is planned toward the end of February - early March 2018.

Action point: ICARDA to provide a template for organizing events such as field days which encompass: agenda, minutes, photos and the list of participants.

Extension materials

Also based on the agreement, factsheets should be produced. Unfortunately, so far, no factsheets have been produced. We need to fill this gap during the remaining period of the project. Therefore, it was agreed to fully engage this year (2018) to produce:

- One factsheet on Napier (Dr Shahid will take lead)
- One R4D (best practices) on intercropping using cactus x Napier. (Dr Palsaniya will take lead)



Intercropping cactus x Napier (Jhansi, India)

Later on, it was suggested to generate factsheets on Guinea grass, Cowpea and Moringa

Action point:

- Dr. Mounir to provide template for factsheet and R4D (see attached examples). Keeping in mind these are only to use as a guide and know what is needed and not to make similar layout. ICARDA will handle all editing and branding through its communication unit (CODIS).

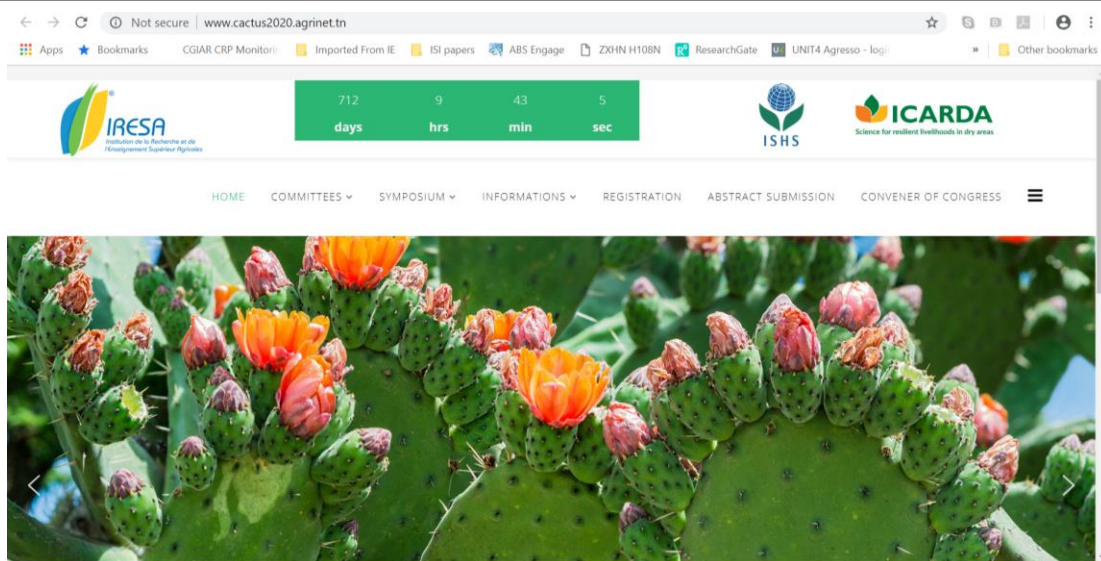
Socio economic study

- Since the team has been consolidated by Dr. Vekas Kumar (Agricultural economist) it is an opportunity to carry out an economic feasibility study (cost of establishing cactus at farm level along with estimating productivity (biomass in FU) and how much saving a farm is making.

Action point: This study should be ready before the end of the project. Dr. Vekas should collect data (using survey/questionnaire) as we implement our workplan at farm level.

International exposure

- The next international Cactus Congress will be organized in Tunisia during the month of September 2020. The site is still in preparation: <http://www.cactus2020.agrinet.tn/>



Nevertheless, we need to start preparing our abstracts/proceedings papers. We should have at least 1 paper for each participant. It will be good to suggest title and name of authors at this stage, so we can all agree on the next steps.

- Request for Training: On behalf of IGFRI Dr Sunil requested ICARDA to provide special training on cactus for the staff involved in the project

Action point: Dr Mounir will explore possibility for conducting a special training either in Jordan or in Tunisia. He has to secure additional fund as this activity was not planned under the current bilateral agreement.

Administrative and Financial Issues

So far, the 2018/19 budget allocated to partner (IGFRI) has not been transferred. The main reason for this delay is the fact that 2017/18 budget has not been consumed totally. Based on ICARDA policy we cannot transfer additional fund until the previous fund is settled. This delay puts pressure on ICARDA scientists as they are constantly reminded by ICARDA management to consume total budget as it was planned. In addition, it gives wrong signal that perhaps the fund allocated to this activity is too much than what is really needed and possibility to cut part of the fund for the next calendar year.

Reporting has been great, and we would like to thank the IGFRI team for their excellent input and timing as each time we request information without any delay we are up-to-date. Also sharing of information has been great especially when working on manuscripts. So thank you all for your dedication and fruitful collaboration.

Action point: There is an urgent need to settle 2017/18 fund ASAP (preferably before the 01st of November 2018). Based on a recent circular from ICARDA finance, the last day to submit request for advances to partners and collaborators is set for the 9th of November 2018. We cannot stress this issue enough as we

could not access this year's fund until Feb 2019 which is too late for this calendar year (end in 31 March 2019).

On-farm trials and dissemination to farmers

This activity has been slow and has not reach anticipated outcome. So far, most of the efforts/focus have been within the institute (on station). We certainly need to touch as many farmers as possible to reach expected impact (adoption). Sure, there is the issue of free roaming animals which would destroy cactus plantations through direct grazing.

Action point:

- It was agreed to select 3 pilot sites outside the institute (preferably community-based organization) where we would establish cactus nursery for pad multiplication. The cactus pad would then be distributed to community members either to establish a small nursery near their dwelling or for feeding animals. The project should cover at least the material needed for fencing area (at least 0.5 ha per pilot site). This way the unspent fund can be liquidated quickly and at the same time start witnessing results at farm level.