Breaking new Ground in Indo-Israeli Agricultural Collaboration

Tel-Aviv University I TATA Trust

Rationale

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- Potential of Israeli Agricultural and Water Technologies in India
- Barriers to technology transfer
- Technologies must be adapted to the special conditions and constrains of Indian farmers
- To prove real potential, Israeli technologies must be tested in real villages and by real farmers
- A platform for commercialization of proven solutions

Creating a bridge between the reality and needs in the field, and the technologies and agricultural experts in Israel

Drips in Jumbuni village

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Work Plan

Framework and schedule

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- **Initial visit to Jharkhand by an Israeli students team**
  - Held between September to October 2017
  - Procuring foundations for research database
- **Data analysis, research and pilot designing**
  - Will be held throughout the semesters while consulting agricultural experts and private sector companies
  - Developing a sustainable and scalable model for a pilot to be tested in the field
- **Future visits to Jharkhand**
  - Beginning the Implementation process in the field

Framework in India

To gain a deeper understanding of the special challenges and constraints of the Indian farmers experience, by:

- designing and applying two different surveys in order to assemble a holistic picture of the farmer's agricultural practices and economic behavior
- designing and applying two different surveys in order to assemble a detailed report regarding nursery practices, expenses and management
- Collecting physical data in the fields and nurseries regarding temperature, humidity and soil moisture via Sol–Chip technology
- Mapping the various agriculture-related technologies currently in use by farmers
- Adapting two of the weekly surveys for a continuous data collection by the local teams

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First visit to Jharkhand

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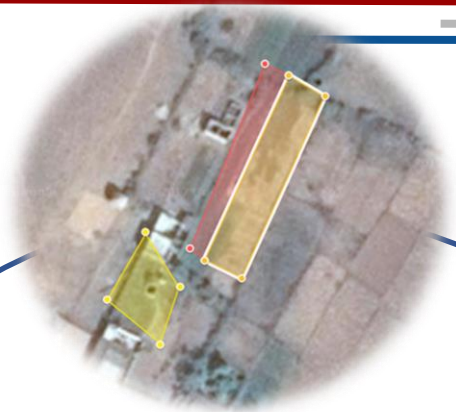

Plot Monitoring

Mutilal Tudu
farmer from Jumbuni

Physical Data

Survey Data

Data collection

- 18 plot tracking surveys
- 19 preliminary survey
- 23 weekly survey
- 4 preliminary nursery surveys
- 2 weekly nursery surveys
- Detailed interview with: Federation secretary, master trainer, LRP, RDA area coordinators and others

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Surveys

Preliminary survey

- Assembling an encompassing picture of (selected) Households' high value agriculture cultivation practices in current Kharif
- Understanding the Households' agriculture related expenses, economic behavior and financial options
- Mapping the farmers high value agriculture plots
- Mapping the different technologies in the farmer's tool-kit

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Prilimanry Survey - 1010 - Excel

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	A	B	C	D	E	F	
1	Subject	Questions		eggplants		chilli	
2				Answer	Notes	Answer	N
3		What was the method for soil preperation?		tractor		tractor	
4	Soil preperation	Machinery	If you used machinery, what was its total cost?	4500	for everythiing		
5		Paid labor	If you used paid labor, what was the total cost?	2250			
6		What was the seeding method used?			homemade with soil seed		
7		Seeds / Homemade with soil saplings	*What kind of seeds did you buy?*	VNR 218		lumhems simhot	
8			How many bags of seeds did you buy?	2		1	
9			What is the price of one bag of seeds (Rs)?	120		320	
10	Seeding		What was the date of seeding?	3.06.17		17.06.17	
11		Nursery saplings	How many sapling did you buy?	220			
12			What was the price for one sapling (Rs)?	0.8			
13			What was the date of planting?	3.07.17			
14		Labor	Did you use any paid labor for fertilizing? If you did, what	0		0	
15		What kind of fertilizers did you used?					
16		Organic	How many times did you apply it so far this season?	1	cow dung	1	cow dung
17			How many kg did you use so far this season?	700		300	
18			What was the cost for one kg?	1		1	
19			What made you decide to use this specific frequency?	common knowledg	and LRP		
20		NPK 19-19-19	How many times did you apply it so far this season?	2		2	
21			How many kg did you use so far this season?	2		1	
22			What was the cost for one kg?	220		220	
23			What made you decide to use this specific frequency?	PoP		PoP	
24			How many times did you apply it so far this season?	2		2	

HH Information | Crops this Kharif | Revenues from past seasons | Financial | Crop Monitoring ...

Fagun Ram's HH, farmer from Churchu

Weekly Survey

- Assembling an encompassing picture of (selected) Households' high Monitoring the farmers weekly usage of fertilizer, pest control, irrigation, labor etc. in high value agriculture plots
- Monitoring the farmers' weekly expenses, revenue, damages, crop quantities in harvesting and marketing etc.

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Weekly Survey - 1010 12.10.2017 - Excel

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D2 | Manik Gope

	A	B	C	D
60	Machinery	What kind of machinery did you use for the crop's plots this		0
61		What was the total cost of machinery usage?		0
62	Maintenance and Other Expences	Have you had any maintenance or other crop related		no
63		Expence #1	What was it?	none
64			What was its cost?	0
65		Expence #2	What was it?	none
66			What was its cost?	1
67		Expence #3	What was it?	none
68			What was its cost?	2
69	Revenue	How many kg did you harvest from the crop's plots this week?		110
70		If you stored any of the harvested crop, how much (kg)?		0
71		Did you sell any produce this week?		yes
72		To whon did you sell?		to vender in market
73		How much kgs did you sell this week?		77
74		What was the price for 1 kg?		15
75		What was the total revenue from the crop this week?		1155
76		Plant	Hight (in cm):	
77			Picture of a plant:	

גיליון1

Comprehensive nursery survey

- Understanding the advantages and disadvantages of the different types of nurseries
- Mapping the complete set of practices and techniques used in the different nurseries and the rationale behind them

Subject	Questions	Crop 1		Crop 2		Crop 3		Crop 4		Crop 5		Cr
		Answer	Notes	Answer	Notes	Answer	Notes	Answer	Notes	Answer	Notes	Answer
seeds	crop ID											
	Vegs Type	clliflower		cabage		eggplant		chilli		tomato		bitter squash
	Seeds company	MARRET, SEMIS, NAMDHRI SEEEDS, golden seeds, PAN				VNR, JK,		SEMINIS		amrutha tata , JK, SAKATA		VNR-aakash
	Seeds variety	MARRET-010F1, SEMIS 175, NAMDHRI SEEEDS - NS60N, golden seeds - shegra, PAN - 1008		golden seeds - GS 455, Namdhai seeds - ns43, seminis - amphion, tokita - blue gays, magic ball, mahyco - mahi 139		VNR-218, JK-8031, SUNGRO 132,	different veriaty for different demad	SEMINIS - siam hot		amrutha tata , JK -nanadini, JK-th447, SAKATA - bhagyawan		VNR-aakash
	how many seeds did you buy?	12,500 seeds	2,500 seeds in each packet * 5 packets	15,000 seeds	2,500 seeds in each packet *6 packets		2,500 seeds in each packet *55 packets	25,000 seeds	10 packets	17,500 seeds	2,500 seeds in each packet * 7 packets	5,(
	Where did you buy the seeds?	given for veriatal trile by cini scientist	brought from uriza	veriaties 1-4 scientist, veriaties 5-6 venders recommendation		neerby shop		neerby shop		neerby shop		neerby shop
	how did you decide what vegetabels to grow?	CINI recommondation				other	his own experience and as instructed by scientist	CINI recommondation	common in this area	venders recommendation		his experience
	type of sapling	soilless		with soil		soilless		soilless		soilless		soilless
	What is the medium?	coco peat		coco peat		coco peat		coco peat		coco peat		coco peat

general details | present Kharif | marketing and revenue | multichoice answer

Weekly nursery survey

- Monitoring the farmers' weekly usage of fertilizer, pest control, irrigation etc.
- Monitoring the farmers' weekly expenses
- Spotting prevalent damages to the plants, and understanding the farmers response to them
- Monitoring weekly saplings sales in the nursery

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Physical Data

Plot tracking

200103 →

2001
200103

Farmer
Fagun Ram

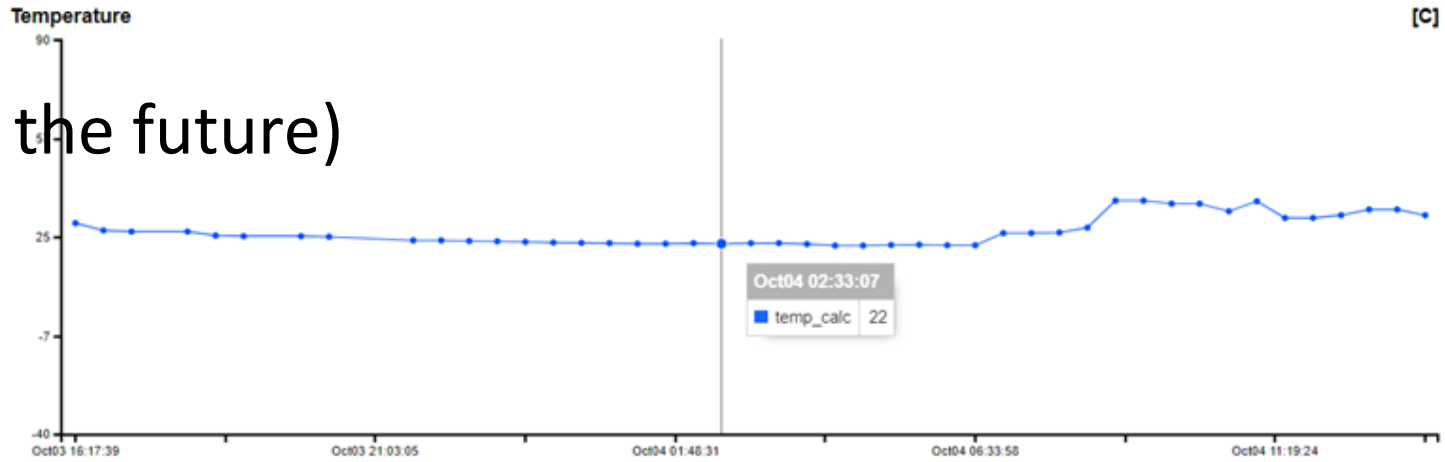
Village
Churchu

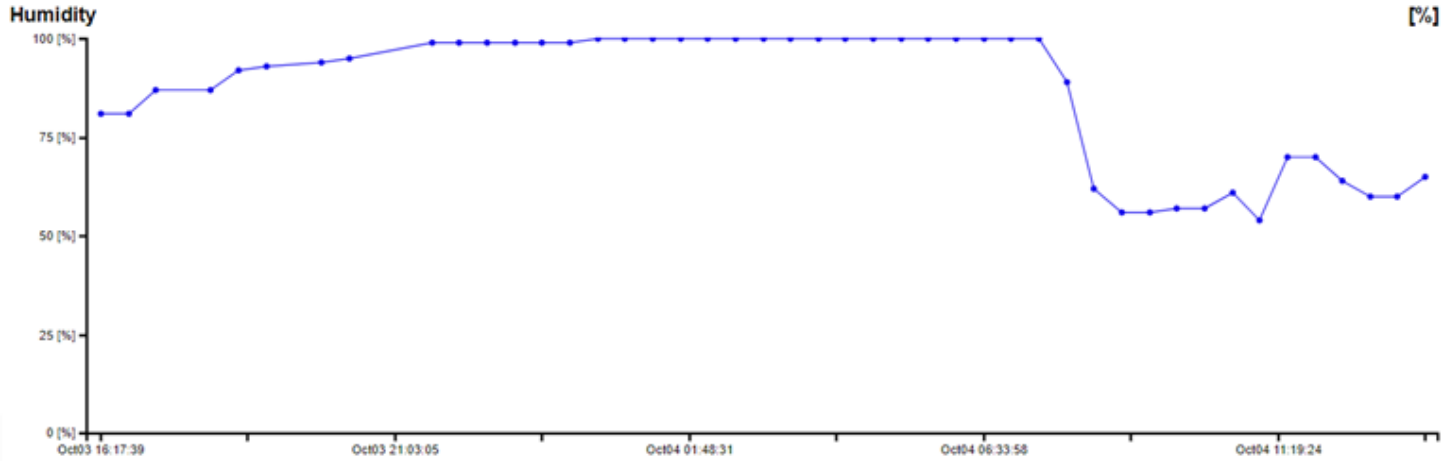
Current Crop
Tomato

sqm
550

Physical Data

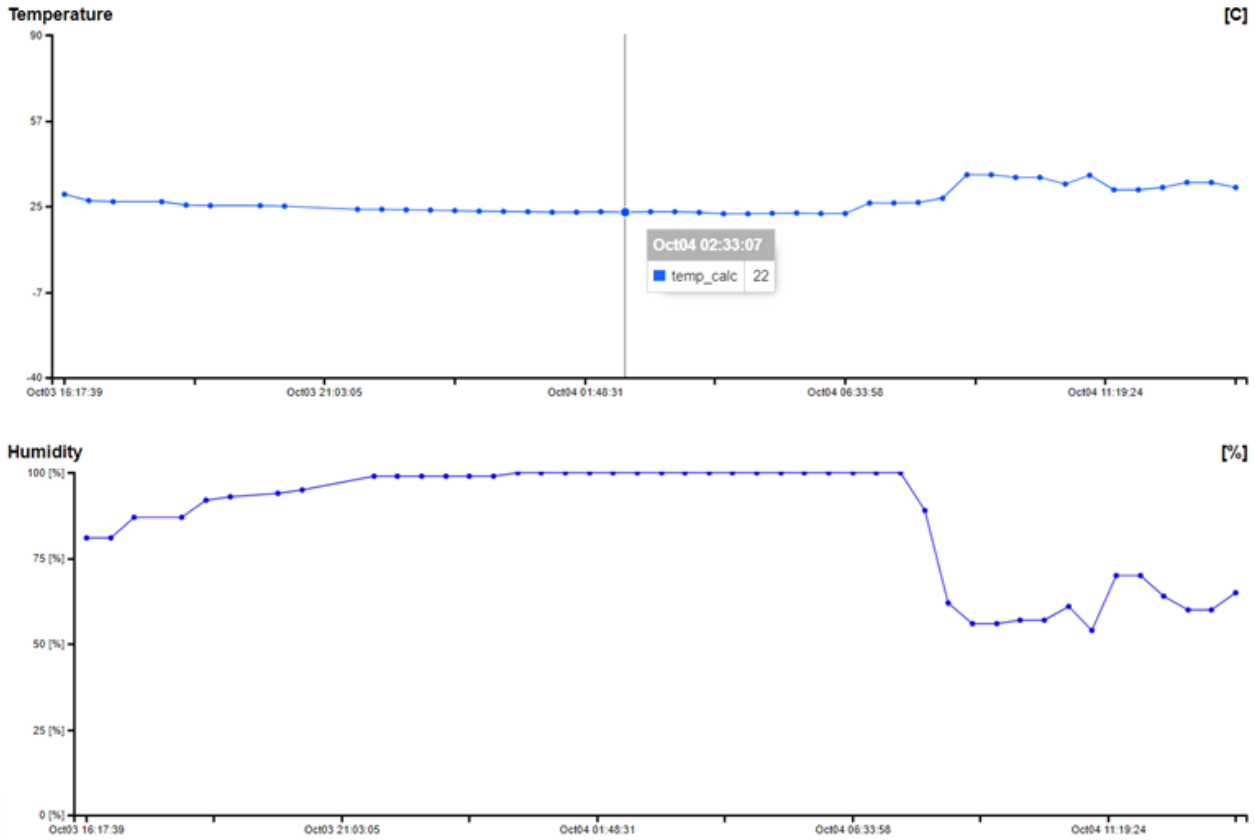
- Sol – Chip Sensors
- Soil and water samples (in the future)





Physical Data

- Sol – Chip Sensors



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Future Plan

Framework in Israel

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- Consulting top Israeli experts and scouting for innovative solutions and technologies, in accordance with the analyzed data collected in the field
- Adapting the solutions chosen to match the specific conditions and constraints of the local farmers
- Designing a special business model fitting these exact same constraints and harvesting the advantages of the existing economic structure (eg. SHG)
- Preparing a practical and detailed plan for a pilot to be implemented the following year, together with CINI, Israeli scientists, agricultural experts, and the private sector
- During this process, keeping an open channel of information between CINI and TAU, so that the Pilot design could be adapted accordingly

Business Model

- Tailor-made direct involvement in mission 2020
- By understanding the potential of local entrepreneurs, social structures and institutes, each technology presented, will be supported with an adequate business model suggestion in order to achieve sustainability in funding and usage

Main topics for further research

- Water harvesting
- Nurseries and low cost greenhouses
- Affordable monitoring technologies (field and nurseries)
- Marketing and business models
- Information sharing platform
- Training methodology for delivering technologies
- Storage solutions

Low hanging fruits

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इजरायल के दो छात्र खेती पर रिसर्च करने पहुंचे धालभूमगढ़

धालभूमगढ़ |इजरायल के तेल अवीव यूनिवर्सिटी के कुरेल फिन कैरेस्टीन तथा डेविड सूरेमन ने रिनी टाटा ट्रस्ट के सहयोग से कृषि को लेकर रिर्सच कर रहे हैं। ये दोनों इजरायल से यहां आकर 14 सितंबर को विभिन्न स्थानों पर घूम घूम कर कृषि व्यवस्था को देख रहे हैं। साथ ही कृषि की उन्नति के लिए रिर्सच भी कर रहे हैं। रिर्सच करने पहुंचे कुरेल फिन कैरेस्टीन तथा डेविड सूरेमन ने विशेष बातचीत में बताया कि धालभूमगढ़ प्रखंड क्षेत्र में पानीजिया, जुनाकनी, गोंगलो, नरसिंहगढ़, रावताड़ा, समेत विभिन्न क्षेत्रों का भ्रमण किया।