



# TOMATO PILOT - EAST WEST SEEDS

yearly report 2017/2018

## 1 Design and implementation

### 1.1 Objectives of the demonstrations

East West Seeds' (EWS) first year tomato pilot consisted of the testing of two hybrid tomato cultivars combined with improved farming practices in four different townships in the Myanmar dry zone (Pakokku, Salin, Pwint Phyu and Seik Phyu). In every township, the EWS Knowledge Transfer (KT) team worked with 16 demonstration farmers, at whose plots technical training activities were conducted for the demonstration farmer and other attending trainees.

Prior to the tomato pilot as carried out by EWS, the following objectives were formulated:

- Participating farmers will understand benefits of the improved cultivar and cultivation practices regarding yield and quality;
- Participating farmers will experience that the pre-selected East West Seed cultivars will have equal to better storage characteristics and market acceptance;
- Participating farmers will experience that the cultivation of the pre-selected East-West Seed tomato cultivars is economically viable year-round (including out-of-season).

Before and during the pilot, data from both key farmers and non-beneficiary farmers on yield and income was gathered. This report provides a snapshot of the situation in September 2018, when the pilot was still ongoing.

### 1.2 Cultivars and recommended cultivation practices used

#### 1.2.1 Tomato cultivars used in the pilots

In the demo farms of tomatoes, two different tomato cultivars were tested with improved farming techniques. In Table 1, the two tomato cultivars are further described.

TABLE 1: THE DIFFERENT TOMATO CULTIVARS USED IN THE PILOT

No.	Tomato cultivar	No. of demo's	Characteristics
1	Platinum	62	Hybrid; suitable for rainy season; heat tolerant
2	Nirvana	39	Hybrid; suitable for winter season; large fruits

### 1.2.2 Recommended practices used in the pilots

The tomato crops were cultivated according to EWS' recommended cultivation practices, of which the main are:

#### *Nursery*

- Prepare seed tables and netting to allow ventilation and protect the seedlings against insects and direct sunlight
- Use seed trays and fill trays with heated substrate (to reduce damping-off)
- Expose the seedlings to more light 2-3 days before transplanting
- Transplant after about 4 weeks (28 days)

#### *Good land preparation*

- Well-cultivated soil and raised beds for strong root and plant growth
- Narrow paths for irrigation and drainage (correct spacing)
- Plastic mulch to prevent weeds and rain and sun impact
- Trellis installation 8-10 days after transplanting

#### *Safe and effective use of pesticides*

- Alternate chemicals to prevent resistances
- Remove infected plants and fruits
- Reduce spraying of 70 DAT if the crops are healthy
- Control sucking insects to prevent viruses

Refer to the Tomato Crop Guide (EWS) on the VegImpact website<sup>1</sup> for the complete list of recommended practices.

## 1.3 Implementation arrangements in Magway

EWS's Knowledge Transfer Team provided advice on cultivation techniques from land preparation to harvest. Activities were entirely pre-commercial and focused on upgrading production techniques. They consisted of:

- Technical demonstrations showcasing improved vegetable production practices
- Regular (short) training events covering a wide range of topics on vegetable production
- A core group of farmers in each village will participate in a series of (short) practical training events which will follow the complete growing season of crops on each demonstration farm

<sup>1</sup> <http://www.dutchvegsupportmyanmar.com/tomatoes/>

- Field days on each successful demonstration to disseminate technical, financial and marketing information.

Advisors of the EWS Knowledge Team were stationed in four different villages in Magway District: Pakokku, Salin, Pwint Phyu and Seik Phyu. In each location the EWS Advisor would work with 16 demonstration farmers and throughout the season at each demonstration plot three technical training activities would be conducted for the demonstration farmer and at least ten of the neighbouring farmers. Furthermore, a larger Field Day event was planned at each location to attract interest and disseminate the main agronomic recommendations on tomato to larger number of farmers in the area.

TABLE 2: PLANNED KNOWLEDGE TRANSFER ACTIVITIES ON TOMATO IN MAGWAY

	Targets for the 2017-18 season	
Demonstrations	4 EWS Advisors with each 16 key farmers and a total of 64 tomato demonstrations	64 key farmers in Magway district
Training events	3 training events per demonstration	640 tomato farmers trained
Field days	Minimum one field day per village	500 additional tomato growers informed

## 2 Ongoing achievements

### 2.1 Number of participating farmers (male / female)

After some initial start-up problems in the early months of the demonstration program in 2017, the EWS advisors developed a good understanding with the local farmers and a series of successful tomato demonstrations were established. A total of 95 training events and 28 Field Days were conducted in Magway in 2017-18. Other farmers and tomato growers joined the training and the field day activities organised by the EWS Knowledge Team in Magway Region. A total of 1478 male and 243 female farmers were trained during the trainings and the field days.

In the training, farmers were taught about good agricultural practices concerning effective use of fertilizers, soil and crop nutrient management, and integrated pest management. During the field days, farmers learnt the impact of improved cultivation practices on the quality and yields of the tomato crop were demonstrated. Questions were raised by the interested farmers mostly about the experiences of demo-farmers and improved farming practices. In the tomato demo farms, the effects of an improved nursery and better seeds in combination with raising beds, better plant spacing, use of plastic mulching, improved crop protection and balanced fertilisation were compared to the conventional practices. Table 2 shows the number of training events, number of field days, and number of participants (m/f).

TABLE 3: SUMMARY OF TRAINING OUTPUTS FROM THE TOMATO (AND ONION) PILOT

Township	No of trainings	No of field days	Total farmers	Male	Female	Average trainees/ training
Pakokku	14	7	443	421	22	21
Salin	12	2	255	183	72	18
Pwint Phyu	21	8	604	566	38	21
Seik Phyu	20	11	419	308	111	14
<b>Total</b>	<b>95</b>	<b>28</b>	<b>1721</b>	<b>1478</b>	<b>243</b>	

## 2.2 Number of tomato demo farms in Magway

A total of 101 tomato demo farms were established in Magway region. 13 demo plots have already terminated due to adverse weather conditions at the time of growing. 74 demo plots have already completed harvesting. At the time of writing the report (August 2018), 14 demo farms are still harvesting (ongoing). Farmers who have completely harvested are start preparing for the next crop of tomatoes. The total numbers of demo plots for all crops in 4 different townships are summarized in Table 4.

TABLE 4: TOTAL NUMBER OF DEMO PLOTS FOR ALL CROPS IN 4 DIFFERENT TOWNSHIPS

	Township in Magway	Ongoing Demos (plot)	Completed Demos (plot)	Terminated Demos (plot)
1	Seik Phyu	8	28	10
2	Pakokku/ Myit Chay	8	29	2
3	Pwint Phyu	0	25	2
4	Salin	5	13	5
	<b>Total</b>	<b>21</b>	<b>95</b>	<b>19</b>

## 2.3 Yield and net income in farmers' fields

Table 5 indicates average, minimum and maximum yield of tomatoes in 4 districts. The overall average yield of tomatoes in demo-farms in Magway was 14682 viss/ ac (59.2 MT/Ha) for the Nirvana variety and 12418 viss/ ac (50.1 MT/Ha) for Platinum variety. Among the four townships, the average yield was the highest in Salin, followed by in Pwint Phyu, Pakokku/Myit Chay. The lowest yield was reported in Seik Phyu (13.3 MT/ha for Nirvana and 12.8 MT/Ha for Platinum).



TABLE 5: THE AVERAGE, MINIMUM AND MAXIMUM YIELD OF TOMATOES IN 4 DISTRICTS

Township	Average (viss/ac)		Minimum (viss/ac)		Maximum (viss/ac)	
	Nirvana	Platinum	Nirvana	Platinum	Nirvana	Platinum
Salin	9,573	10,332	17,467	8,222	45,300	64,891
Myit Chay/Pakokku	7,190	6,359	2,460	4,420	12,120	11,440
Seik Pjyu	3,309	3,183	1,450	1,180	10,300	6,763
Pwint Phyu	16,319	8,681	11,220	2,938	25,073	17,750
4 Township Average	8939	6,074				
	Average (MT/Ha)		Minimum (MT/Ha)		Maximum (MT/Ha)	
Salin	38.6	41.7	70.4	33.2	182.7	261.7
Myit Chay	29.0	25.6	9.9	17.8	48.9	46.1
Seik Pjyu	13.3	12.8	5.8	4.8	41.5	27.3
Pwint Phyu	65.8	35.0	45.2	11.8	101.1	71.6
4 Township Average	36.7	28.8	32.8	16.9	93.6	101.7

Figure 1 shows the average yield of tomato demo farms in the different townships. The average yield of both varieties of tomatoes was the highest in Pwint Phyu Township, followed by Salin township.

FIGURE 1: AVERAGE YIELD OF TWO DIFFERENT VARIETIES OF TOMATOES IN MAGWAY

Yields of participating farmers at demo- farms and conventional farmers are compared in Figure 2.

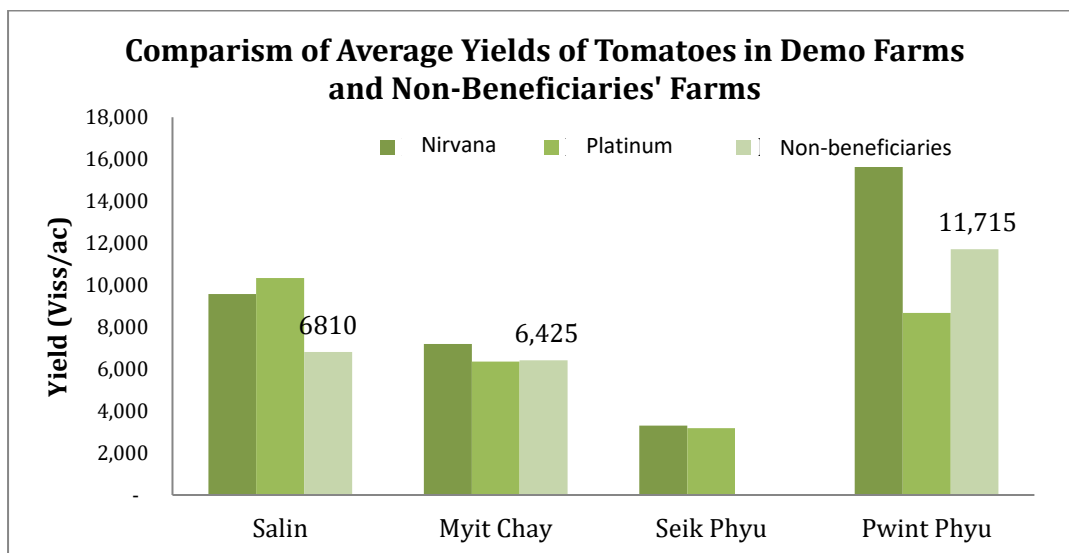


FIGURE 2: COMPARISON OF YIELDS OF TOMATOES IN DEMO FARMS AND NON-BENEFICIARY FARMERS IN 4 TOWNSHIPS IN MAGWAY

As can be seen on the figure, the average yield demo-farmers and non- beneficiary farmers is not significantly different. The EWS KT explains that it had difficulties to select the right key farmers and that consistently adhered to the suggested improved practices. This will be taken into account during the follow-up trial.

## 2.4 Marketing of tomatoes

Figure 3 shows the average price received by the farmers in Magway. Farmers in Pwint Phyu sell tomatoes to the retailers from nearby villages and traders in Pwint Phyu wet market. The average price received by the demo-farmers was 485 kyat/viss for the Nirvana variety and 1154 kyat/viss for the Platinum variety. The price of the Platinum variety was higher than the price of the Nirvana variety because it was grown in the rainy season, meaning off-season for these areas.

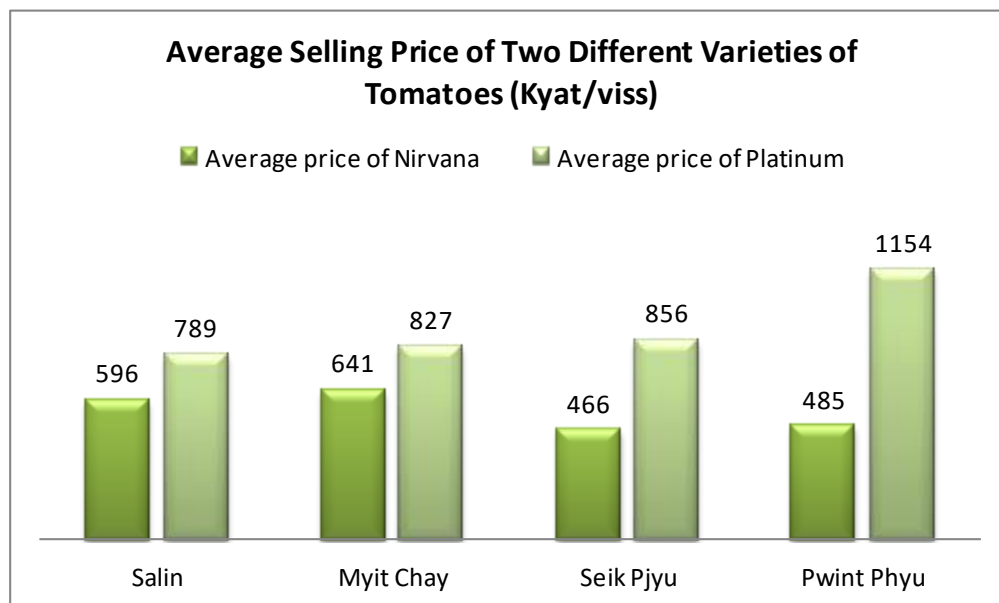


FIGURE 3: THE AVERAGE PRICE RECEIVED BY THE FARMERS IN MAGWAY

## 2.5 Benefits for tomato farmers in Magway

Gross profit of demo farmers were calculated according to the database of EWS's KT App and are provided in Table 7. It explains that the gross profit of farmers from Platinum variety is higher than that of the Nirvana variety although the yield was lower. This is explained by the higher price of the harvested Platinum variety because of its off-season production.

TABLE 6: GROSS PROFIT OF DEMO FARMERS

		Area (Acre)	Yield (viss/ac)	Cost (Kyat/ac)	Revenue (Kyat/ac)	Gross Profit (Kyat/ac)	Gross Profit (Kyat/ sown area)
Nirvana	Salin	0.1	9,573	743,000	18,979,167	16,502,500	495,075
	Myit Chay	0.1	7,190	2,547,306	4,478,083	1,930,778	196,296
	Seik Pjyu	0.1	3,309	582,667	1,426,611	843,944	84,394
	Pwint Phyu	0.13	16,319	2,035,150	7,045,633	5,010,483	651,363
Platinum	Salin	0.04	10,332	1,188,832	23,673,105	20,158,767	617,489
	Myit Chay	0.1	6,359	1,437,853	3,677,850	2,239,997	224,000

	Seik Pjyu	0.1	3,183	742,809	2,732,350	1,989,541	198,954
	Pwint Phyu	0.1	8,681	1,956,515	9,473,805	7,517,290	741,706

### 3 Pilot plans for the upcoming season

For the first stage of this project (including the new area and new staff), it appeared difficult to select the right key farmer and corresponding demo-farm. A comparison of the average yield between demo-farmers and non-beneficiary farmers shows that this yield is not different. As a consequence, in the coming year the study will include data of the key farmers before and after the introduced improved practices, in addition to the comparison between average yield of key farmers and non-beneficiary farmers.

For the next season (2018/19), a total number of (72) demo-farms, (96) general trainings for tomatoes and onion and (48) field days would be organized by EWS. A total of 1824 participants is expected to be involved in the training activities.

**TABLE 7:** PLAN OF VEG IMPACT PROJECT(2018-JUNE-2019-MAY)

No	Township	No of demos (June to September 2018) Rainy season	No of demos (Oct. 2018 to Jan. 2019) Winter	No of demos (Feb. to May 2019) Summer	Total demos
		Tomato (Platinum)	Tomato (Nirvana)	Tomato (Nirvana)	
1	Pakokku	14	8	10	<b>32</b>
2	Seik Phyu	14	8	10	<b>32</b>
3	Salin	14	8	10	<b>32</b>
4	Pwint Phyu	14	8	10	<b>32</b>
		<b>56</b>	<b>32</b>	<b>40</b>	<b>128</b>

Discussions with Metro Wholesale are taking place to see whether direct marketing to a Yangon-based wholesale company can deliver better prices for the tomato growers in the Magway region. A marketing pilot with Metro and a first group of farmers will be designed accordingly.