

# 1. Growing Potato by Hybrid True Potato Seeds (TPS)



## 2. Potato In Myanmar

- ❖ Potato was introduced to Myanmar around 1850.
- ❖ It is grown in almost all the States and Divisions.
- ❖ Grown throughout the year in Shan States.
- ❖ In 1924, Up-to-Date and Ally varieties were selected for production.
- ❖ By 1983, Up-to-Date (UTD) variety occupied, nearly 100% of the total area planted to potato.
- ❖ In 1984 CIP and Myanmar started a joint important project.
- ❖ Introduced over 50 clones/cultures
- ❖ But UTD have proven versatility and flourished over 90 years.
- ❖ Now UTD has become susceptible to Late blight diseases, which is hard to control.

### 3. Introduction of Hybrid True Potato Seeds

- ❖ Use of hybrid TPS instead of seed tuber was adopted in many developing Countries especially in China & India.
- ❖ TPS was introduced for field trails in 2002, in Shan States.

## 4. Advantages of using TPS over Tubers

- ❖ Low seed cost for seed.
- ❖ The amount of edible potatoes used for seed could be reduced.
- ❖ Spread of tuber transmitted diseases could be minimized.
- ❖ Resistant to Late blight disease.
- ❖ No problem in seed storage and transport.
- ❖ Seeds can be stored over 2 years.
- ❖ Hybrid can yield as much as 2 kg / plant and TPS yields better than Seed Tubers.
- ❖ Seed tubers from TPS retain resistance to late blight.



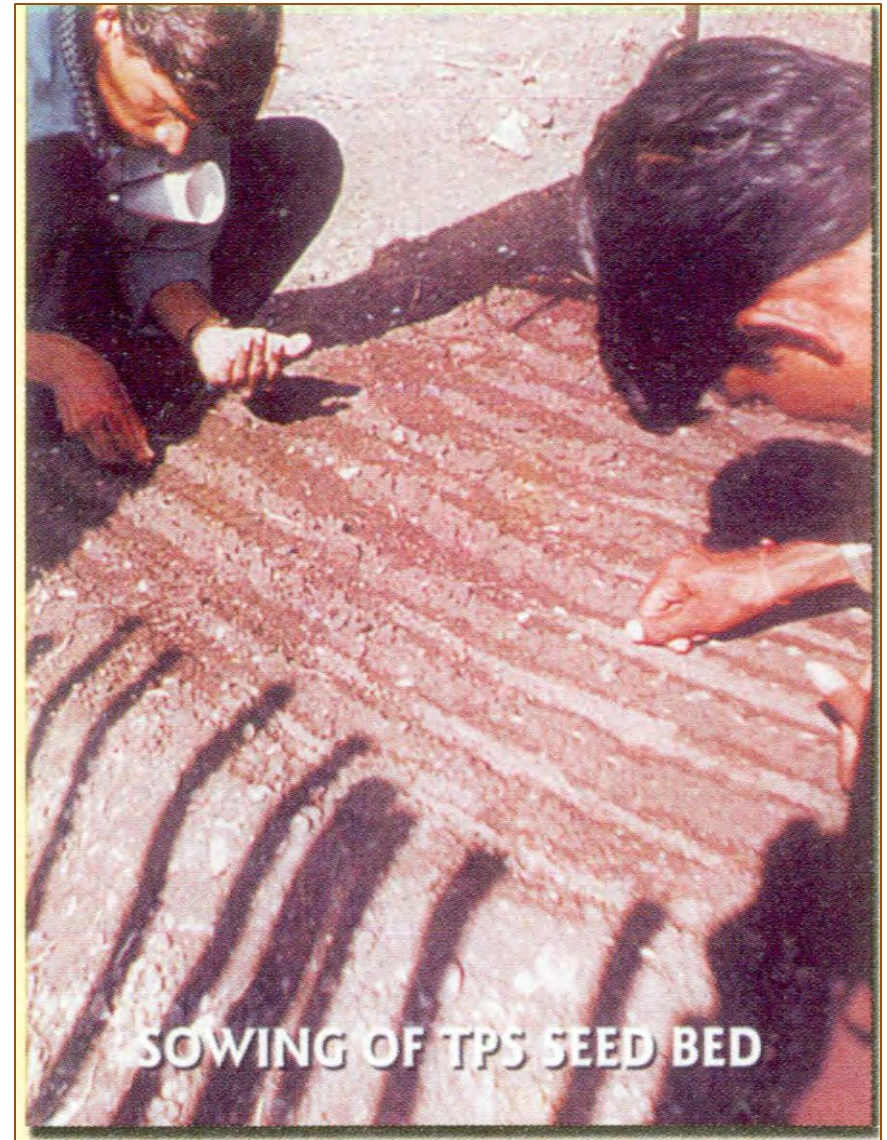
## 5. Advantages of TPS Over Tubers

SL NO.	PARTICULAR	SEED TUBERS	SEEDLING TUBERS	TPS TRANSPLANT
1	SPEED RATE	HIGH (2.5T/ha)	LOW (50gTPS + 1t/ha)	VERY LOW (125g TPS/ha)
2	USE OF LAST YEAR'S FIELD PRODUCE	YES	YES	NO
3	COLD STORE FACILITY	REQUIRED	REQUIRED	NOT REQUIRED
4	COLD STORE CHARGES	HIGH	LOW	NIL
5	TRANSPORT COST	HIGH	LOW	NIL
6	COST OF PLANTING MATERIAL	HIGH	LOW	VERY LOW
7	CULTURAL PRACTICE	SIMPLE	SIMPLE	SIMPLE
8	DISEASE RESISTENCE	LOW	HIGH	HIGH
9	YIELD	MEDIUM	VERY HIGH	MEDIUM
10	RECOVERY RATE	LOW	HIGH	HIGH
11	WHO CAN AFFORD TO GROW	LARGE & MEDIUM FARMERS	LARGE TO SMALL FARMERS	LARGE TO VERY SMALL FRAMERS

## 6. Methods in growing TPS Seeds

- ❖ Potato belong to solanaceous family and TPS seeds can be raised like tomato or egg plant seeds.
- ❖ Seeds are sown on well prepared raised beds with sieved manure and fertilizers.
- ❖ Seeds are sown in 0.5 cm deep furrows spaced at 10 cm apart on the raised beds and covered with sieve manure.
- ❖ Use 2 gm of seeds to sow in one square meter bed.
- ❖ Water the seed bed 3 times a day with a fine sprinkler just to wet the bed.
- ❖ Give shade 3 feet over the seed bed in too sunny condition.
- ❖ Apply 0.1% urea solution when the seedlings reach 2-3 leaf stage at 2-3 days intervals.
- ❖ Seedlings will be ready to be transplanted in 25-30 days old at 4-5 leaf stage.
- ❖ Harden the seedlings before transplanting.









**SHADE ON SEED BED**



**SEEDLING FOR TRANSPLANTING**





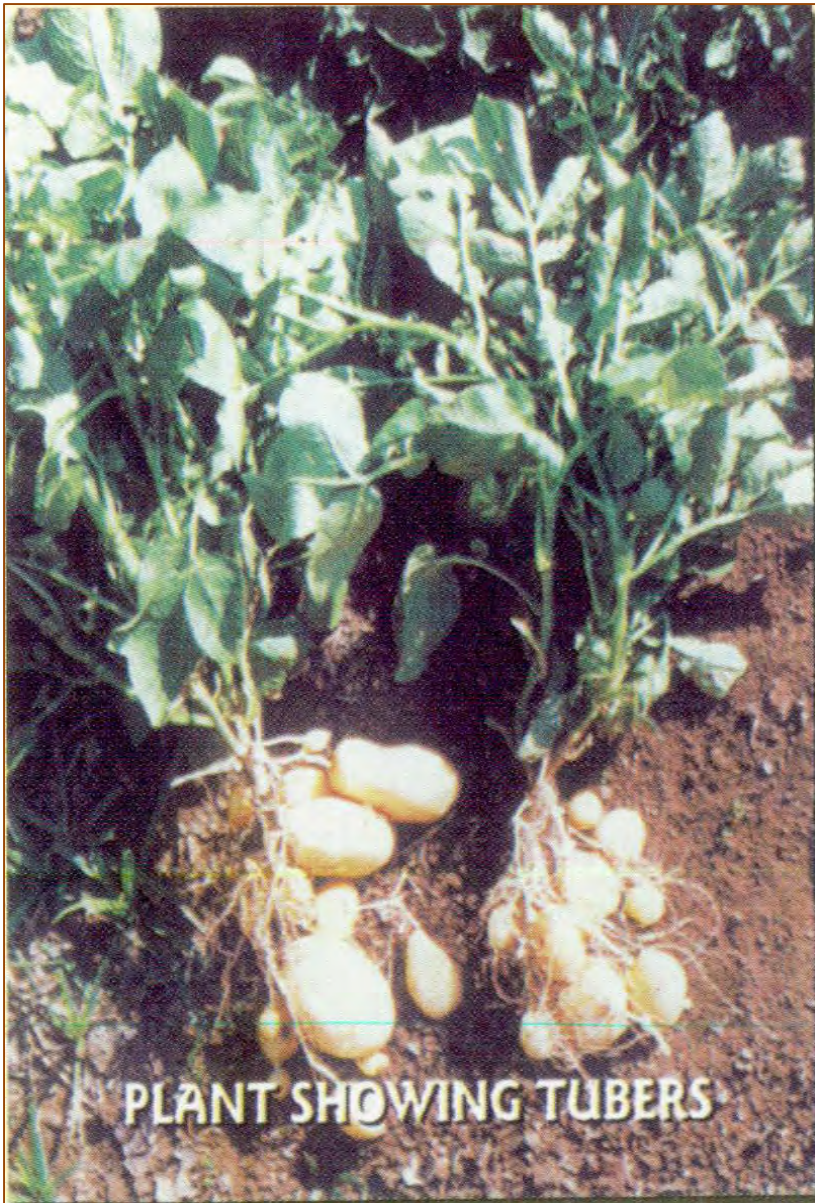














## 7. Transplanting in the field

- ❖ Prepare the land well by applying manure and fertilizer.
- ❖ Make 6-8 inches deep furrows 20 inches apart.
- ❖ Apply irrigation water in the furrows a day before transplanting.
- ❖ Transplant the seedling just above the moist soil, burying up to the first node of the seedling.
- ❖ Irrigate up to the base of seedling after transplanting.
- ❖ Apply nitrogen 30 days after transplanting and hill up the plant.
- ❖ Can be harvested 90 days after transplanting.

## 8. Management Practices

- ❖ Add compost or manure 30 days after transplanting and add nitrogen fertilizer.
- ❖ Apply insecticides when necessary.
- ❖ Irrigate when necessary.
- ❖ With draw irrigation 80 DAS.
- ❖ Cut the stem at 90 DAS.
- ❖ Dig the tubers 10 days after cutting the stem.
- ❖ Spray tubers with 3% boric acid + 1% zine sulphate and store when dry.
- ❖ This method is for production of ware-house potato.



## 9. Production of seed tubers by direct sowing of TPS

- ❖ Prepare seed bed as above. Apply  $\frac{1}{2}$  amount of N and full amount of P in bed.
- ❖ Water the beds a day before sowing.
- ❖ Make 0.5 cm deep holes, 4 cm and 25 cm between hills between hill and rows.
- ❖ Put 2-3 TPS seeds with a bean or corn seed per hole and cover with sieve manure.
- ❖ 40-60 gram of seed will be enough to sow 300 sq meter area.
- ❖ Remove the bean or corn plants by cutting the stem (do not pull)
- ❖ Mini tubers produced will be enough to sow one hectare in next season.
- ❖ Management practices as stated above.

## 10. Production of seed tubers by Transplanting Seedling

- ❖ Prepare sowing beds and seed beds as above.
- ❖ For production of seed tubers, 150 gm of seeds and 75 sq meter sowing bed is needed.
- ❖ Seedlings are transplanted at the spacing of 4 x 18 inches between hills and rows.
- ❖ Apply fertilizers and insecticide when needed.
- ❖ With draw irrigation at 75-80 DAE.
- ❖ Cut the stem at 90 DAE.
- ❖ Dig the tubers 10 days after cutting the stem.
- ❖ Spray with 3% boric acid + 1% zinc sulphate and store in a cool dry place.

## 11. Production of ware-house potato by seed tubers

- ❖ Mini-tubers can be used to grow commercial potato for consumption.
- ❖ Normal planting rate is 2 feet x 10 inches between rows and hills.
- ❖ Seed tubers can be used for several years without losing resistance to late blight disease.
- ❖ Hybrid seed potatoes can yield more than normal seed potatoes.
- ❖ Field trials showed that one TPS plant can yield 0.8-1 kg per plant in the first planting from seeds.
- ❖ Yield can be increased further by planting the seed tuber.



