



The Project of Japanese Grant Aid

Seed Processing Unit

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Seed Processing Unit Aleppo – Al-Bleramoun

The first step of the project has started since 1997. The Japanese team nominated by JICA along with the Syrian team has started studying this project since July 2000.

- ☞ **The project's title:** Improvement of Seed Multiplication Capacity in Syrian Arab Republic.
- ☞ **The project's target:** The project consists of two phases:
 1. **Phase I:** Presenting and installing equipments of wheat seed, processing plant, to cover the farmers need in Aleppo and Idlep provinces. Moreover presenting and installing equipments of quality control laboratory. Its value is ¥ 478 000 000 equivalent to US\$ 4 million and it is the subject of today's inauguration ceremony.
 2. **Phase II:** Presenting the equipments of tissue culture laboratories and a green house at 3 000 m² to produce « Elite » seed potato, in order to cover the country's demand and get rid of its importation. Its value is US\$ 4 million.
- ☞ **The project's site:** Al-Billayramoun village – Aleppo province.
- ☞ **The total site space:** 10 hec. (100 donoms).
- ☞ **The space of seed processing plant:** 5.25 hec. (52.5 donoms).
- ☞ **Producing capacity of the plant:** 15 t/h.
- ☞ **The consultant Inc. :** System Science Consultants, Inc.
- ☞ **The Implementing Crop:** Sumitomo Cooperation.
- ☞ **Civil works:** Presented by Syrian Arab Republic.
- ☞ **The contracts components:**
 1. Electronic truck scale with a capacity 100 t.
 2. Machinery for seed processing.
 3. Quality control lab. Equipments.

Components of seed processing plant

1. Receiving hopper:

To receive raw wheat seed. Its size is 24 m² (8x3), and can contain 10 Ton of raw seeds. Discharge capacity 15 t/h (remote control type i.e. more or less). It is provided with magnetic attractor to catch small metal pieces, which may exist in raw seeds.

2. Pre-cleaner:

To eliminate large / small foreign matters such as paper, strings, straw and stones with 40 t/h capacity.

3. Receiving bin:

Three units total holding capacity 120 t. (40 t/unit). To store raw seed after being pre-cleaned, with smooth inner surface (like falls) to ensure slow loading of seeds as to keep them from being damaged or broken.

4. De-awner:

To remove awns and other fluffy appendages at 15 t/h capacity.

5. Cleaner:

To separate in between raw seeds (pure seeds + seed of 2nd class + foreign matters + broken grains + soil/stones + other crop seeds + weed seeds etc.). The capacity is 15 t/h.

6. Indented cylinder separator (2 units):

To eliminate weed seeds, other crop seeds globe-shaped, longitudinal grains and broken grains. Total capacity is 15 t/h.

7. Gravity separator (2 units):

To grade seeds based on differences in specific gravity of grains. It is very effective in separating weed seeds and other crop seeds. It services a supporting unit to previous units. Total capacity is 15 t/h. (7.5 t/h / unit).

8. Storage bin:

Three units total holding capacity 120 t (40 t/unit), to store the fully cleaned seeds before treatment stage, with smooth inner surface (like falls) to ensure slow loading of seeds as to keep them from being broken.

9. Seed treater (2 units):

To treat the cleaned seeds, controlled by computer at total capacity from 7.5 t/h to 50 t/h , divided fairly on the tow units.

10. Automatic scale (3 sets):

To weigh the cleaned and treated seeds before being automatically packed. Total capacity 720 bags (50 kg) /h (240 bags (50 kg) /h per set).

11. Bag sewing machine (3sets):

To sew the bags filled with cleaned and treated seeds. Total capacity 720 bags/h (240 bags/h per unit).

12. Dust collecting equipment:

A group of cyclones to collect dust from all processing machines; starting from receiving hopper and ending by the bag sewing machines.

13. Sampling device:

Automatic sampling for all different parts of the machines.

14. Belt conveyor:

Group of belts. to transfer the seeds from the receiving hopper (Item No.1) and from units (Item No. 3 and 8) to the equipment. The range of its capacity is 12 - 40 t/ h.

15. Bucket elevator:

Group of elevators, for feeding the machinery, and transfer the seeds from one machine to another. Its capacity is according to the capacity of the machines ; it ranges between 15-40 t/h.

16. Buffer tanks:

They are existed on some machines to ensure their continuous feeding.

17. Chain conveyors:

Group of conveyors to transfer the rejects into containers. Its capacity ranges between 15-40 t/h.

18. Bypass system:

To bypass any unnecessary machine for seed processing . It covers parts of the plant except for the pre-cleaner (Item No. 2) in which it is necessary for the seeds, in order to get rid of foreign materials that may damage the machines.

19. Air compressor:

To clean up the plant (lines, machines and floor) with enough capacity for the required works.

20. Main electric control panel:

To control stop and operation works of all the plant, and having failure detecting system.

21. Sub control panel:

To control stop and operation works of some machines, having failure detecting system.

22. Electric fork lift:

To carry containers and pallets at 3 t load capacity.

23. Vacuum cleaner:

To clean up the plant's floor from dust and loose materials depending on floor pipe rods system all over the plant.

Supporting equipments:

- ✓ All units and storage lines have indicators to determine max. and min. seed level. They are attached to main electric control panel.
- ✓ All gates are opened and closed automatically by means of air compressor.
- ✓ The plant has small electric truck scale at 2 t capacity.
- ✓ There are plugs for compressed air along the plant.

Components of quality control laboratory

1. Lab processing equipments:

- 1.1 **Air screen cleaner:** Supplied with pre-and post- aspiration system, de-awmer, three – layer oscillation sieves and sieves self-cleaning device. Its capacity is 150 kg/h.
- 1.2. **Gravity separator:** Capacity 100 kg/h.
- 1.3. **Indented cylinder separator:** Capacity 100 kg/h.
- 1.4. **Auto Scale:** Capacity 150 kg.

2. Testing equipments:

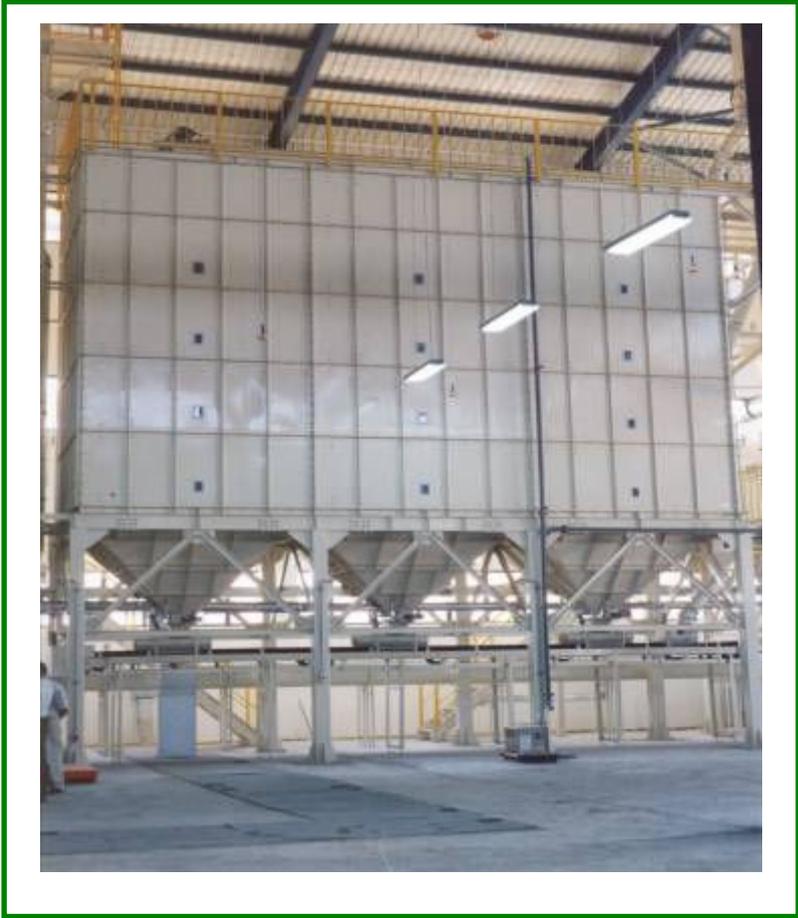
- 2.1. **Seed samples divider:** To divide equally the samples before being tested with a capacity of 3 kg of raw materials (raw wheat seed).
- 2.2. **Stereo microscope:** To check the seeds at 800X magnification.
- 2.3. **Moisture tester:** To check moisture content of seeds with measurement range 0-100 %.
- 2.4. **Electronic seed counter:** To count number of seed grains for checking 1000 grains weight with digital display from 0 to 99 999 grains.
- 2.5. **Analytical balance:** To measure weight of various kinds of seed samples. Its capacity is 600 – 3100 g.
- 2.6. **Illuminated magnifier:** To check an existence of foreign seeds and other crop seeds with 4X magnification.
- 2.7. **Seed samples pans.**
- 2.8. **Round and oblong grain sieves:** with different mesh sizes to separate seed grains.
- 2.9. **Sieve shaker :** To shake small seed grain sieves.
- 2.10. **Grain shape tester:** To measure dimensions and size of seed grains with measuring range 0-20 mm.
- 2.11. **Bag sealer:** To seal plastic sample bags electrically.
- 2.12. **Seed samples refrigerator :** With 600 liters volume and operating temperature (cooling range) from -6 °C to -12 °C.
- 2.13. **Seed germinator:** with 150 liters volume and operating temperature (heating range) from 5 °C to 50 °C.



Receiving hopper



Pre-cleaner



Receiving bin

Cleaner





Indented cylinder separator



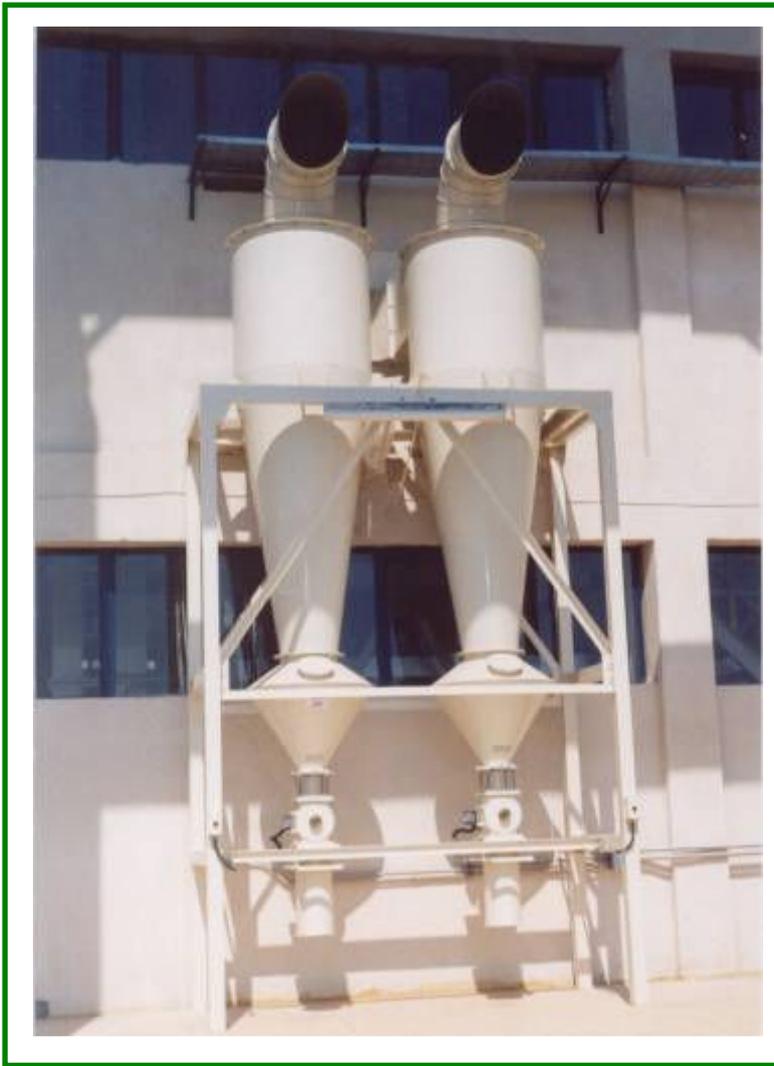
Gravting separator



Seed treater



Automatic weigher and Bag sewing machine



Dust collecting equipment



Main electric control panel



Electronic truck scale



GENERAL ORGANIZATION FOR SEED MULTIPLICATION