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SNAP BEAN PRODUCTION



IMPORTANCE OF SNAP BEANS

Green beans are tender, elongated, firm yet flexible edible pods commonly used as ingredients in many Filipino dishes.

retrieved December 18, 2018 from http://vegetablemndonline.ppath.cornell.edu/factsheets/Beans_WhiteMold.htm

NUTRITIONAL IMPORTANCE

Legumes in general are called as “poor man’s meat.” It is high in protein, vitamins and minerals.



ROLE OF SNAP BEANS IN SOIL FERTILITY

Legumes can fix nitrogen in the soil in symbiosis with some species of bacteria. Legumes are recommended for crop rotation and green manuring.

- **First grade.** The pods should be unblemished, straight and properly green matured.
 - **Second grade.** Pods free from worm or insect damage, less blemished and less distortion.
 - **Third grade.** Pods have numerous blemishes and distortions, but generally have good appearance. Pods less than 5 cm long and over mature are rejected.
2. **Packaging.** Containers commonly used in packaging pods of beans are thick laced bamboo baskets, plastic sacks, polyethylene bags or buri palm bags depending on the distance of the market.
 3. **Storage.** The shelf-life of beans and pea pods are only 2 weeks, these should be sold immediately after harvest. Harvested beans can be temporarily stocked one to two days before these are shipped to the markets.
 4. **Transport System.** Pods may be carried manually, through jeepneys and bus transport.



Reference:

Snap bean production by Prof. Silvestre L. Kudan, Benguet State University.

George S. Abawi and J.E. Hunter , White Mold of Beans

CULTIVATED VARIETIES

There are two forms or types of snap beans which can be grown in the highland.

Snap Bean

- A. **Pole snap beans.** Climbing or indeterminate type which requires trellis for support.

Cultivar	Pod length (cm)	Computed Yield/ha (ton)
Black Valentine (Alno)	14.3	18.68
Stonehill (Patig)	17.6	22.40
Burik	13.3	18.48
Canaya	15.4	20.86
BSU Selection No. 1	12.9	22.04
Kentucky Wonder	18.3	17.24

Data studies of Atos, 1987 and Tandang, et. Al. 1989.

Among these cultivars, Blue Lake has higher resistance to bean rust. Snap bean with light green leaves are more resistant to bean rust than those with dark green leaves.

B. Bush Bean. Non-trailing or determinate type

Cultivar	Plant height (cm)	Pod Length (cm)	Computed Yield/ha (ton)
Beeline	29.16	14.1	13.09
Gator green	36.10	16.4	13.29
Derby	34.39	15.2	13.74
Early Riser	30.87	14.2	12.77
Blue Knight	24.79	14.3	14.20
Tidal Wave	32.61	13.5	15.42
True Blue	37.50	13.5	14.24
Tender Lake	36.14	14.9	15.54
Bush blue Lake	40.96	14.5	15.69
Blue Lake	40.96	15.6	13.85
Saveline	34.68	15.4	14.01

Data from the varietal evaluation trial of Kudan, 1991.

SOIL AND CLIMATIC ADAPTATION

A. Soil Requirement

Snap bean can grow in any type of soil, but they grow best in well-drained, heavy rich loam with a pH range from 5.5 to 6.8.

B. Temperature Requirement

The ideal soil temperature for germination is 15.5 to 29.5°C for snap beans.

emergence. This period is the critical stage where weeds compete with the plants for nutrients elements, moisture, light and space.

J. Harvesting Pods

Harvesting of “green matured pods” starts 60 days from planting. Once harvesting begins, this will be done every 3-4 days thereafter for 7-13 times depending on the variety planted and the care and management.

The harvesting method is mainly done by priming (selecting the green mature pod by hand).

Visual Method. When the “seed zones” become prominent and the seeds are developed to their half-full size the pod is green mature. This is about 16 days from pod set. Some cultivars have pods that turn light green from dark green when mature.

“Feel” method. Green mature pods of beans easily snap in two when bent. The tender seeds are easily crushed between the thumb and forefinger.

K. Postharvest Handling

1. Grading.



As prevention, do not apply fresh chicken dung.

- **Trips and Aphids.** These pests infest beans at any stage of growth. These are sucking insects thus systemic insecticides are applied as in leaf miner.
- **Tomato fruit worm.** This insect eats the pods of beans.
- **Pod borer.** This pest is observed to be prevalent during start of rainy season in beans.
- **Bean Weevil.** A common seed storage pest. Proper pest control in the field is important because this pest is transferred to the storage. Proper drying is important to discourage the pest. Store the seeds in a cold storage if this is available. Bean seeds for planting material should be stored in cans or plastic containers with cover.

2. Disease Pests

- **Bean rusts.** This disease is prevalent during the dry season when it is warm and moist.
- **White mold.** Growers should follow cultural practices that promote drying of soil and plant surfaces by solar drying and blow torch. Included in this is avoidance of small fields surrounded by dense woods that restrict air circulation which delays drying. Also, rows should be planted in the direction of the prevailing winds whenever possible to promote air drainage to reduce moisture on the surface of the soil and the plants.

3. Weed Pest

Weeds of snap beans are basically controlled by hand weeding, hoeing and hilling-up. Do not allow weeds to compete with the plants from 7 to 40 days after

CULTURAL MANAGEMENT PRACTICES

A. Land Preparation

Clean the field from weeds and till 1-2 weeks before planting.

Make plots along the contour lines of the slope. This will minimize soil erosion by surface run-off in sloping areas.

Plots may be left idle for a week or more to allow weed seeds to germinate then incorporate after to destroy the weeds.

B. Seed Treatment (Cold Storage)

While preparing the area, the seeds may be stored in the refrigerator for 45 days. Place the snap bean seeds in plastic bags and tie the openings with string or rubber bands. Place inside the refrigerator at 5°C for 45 days.

When the field is ready for planting, bring out the seeds and plant immediately. This practice promote the production of more lateral branches, early flowering and longer pods.

C. Plot Orientation

Pole snap beans grow from 300 to 400 cm high depending on the cultivar and season of planting. With this, plants may tend to shade each other resulting to low yield. Orienting the plant rows northwest to southeast increases the yield to about 23% while orienting the rows east to west and north to south enhances the flower abscission resulting to low pod set.

Row orientation is not necessary for bush snap beans.

D. Fertilizer Application



The continuous cropping of an area results to permanent removal of nutrient elements from the soil. To sustain production, continuous application of organic fertilizer is necessary. This will not only build up the fertility of the soil, but also encourages the growth and multiplication of beneficial organisms in the soil.

Application of fertilizer can be done in two ways:

1. **Basal application.** After digging the plots during land preparation, construct furrows on each plot. Broadcast chicken dung on the furrows at the rate of one can (16 liters capacity) per plot of 1m x 10m and mix with the soil properly to avoid rotting of seeds especially with fresh chicken manure.
2. **Side dress application.** At present beans require the application of 100-100-100 kg N-P₂O₂-K₂O per hectare (14 sacks) or 714.29 grams of 14-14-14 per plot of 1m x 10m. Apply two to three weeks after emergence followed by hilling-up.

E. Planting Method, Density & Spacing

Snap bean are directly seeded by hand. It is a short day plant and higher percentage of pod set is during October to November.

1. **Seeds required.** An area of one hectare requires 55-60 kg of snap bean seeds.
2. **Plant spacing.** Studies show that 20 cm x 20cm both ways is the best for snap bean with 2-3 seeds per hill.

F. Irrigation

Irrigate/water twice a week up to 50 days after planting/seeding, then irrigate once a week thereafter.

G. Hilling-Up

Two to three weeks after planting, side dress fertilizer is applied followed by hilling-up. This is to cover the side dress fertilizer and at the same time cover/control the young growing weeds. It will also anchor the plants and direct them to the middle of the plots which will make them easy to climb the trellises.

H. Trellising/Crop Support

Trellises are interwovenly placed at the middle of each plot. Each plot of 10m long requires about 60 sticks when spacing is at 30cm each.

Bush snap beans does not require trellis or support for growth.

I. Crop Protection

1. Insect Pests

- **Cutworm.** This insect pest is destructive during the seedling stage of beans.
- **Leaf miner.** This is a serious pest also of garden pea during the dry season. The larvae tunnel into the leaf and eat the chlorophyll leaving only the epidermis.
- **Maggots.** This is a problem during dry season. The young plants wilt as a result of the destruction of the bark of the stem at the soil line caused by the maggot.

