PRODUCT SPECIFICATION OF PINGGU DA TAO

1. Name of PGI or PDO Product:

平谷大桃 Pinggu Da Tao

2. Name of PGI or PDO Product:

Peach is known as an edible juicy fruit that belongs to a species of *Prunus*, the subfamily *Prunoideae focke* of the family *Rosaceae*. the peach trees in the Pinggu area are grown in the shallow hills and rolling countryside of the Yanshan Mountains, that are rich in sunlight and heat and spread with sandy or loamy soil. The unique natural conditions contribute to the special qualities of Pinggu Da Tao, characterized by its "bright color, delicate flesh, plenty of juice, moderate saccharinity and a good acid and sweet balance" a single fruit weighs≥ 150g.

Following is the sensory indexes of 10 different varieties of Pinggu Da Tao:

Variety	Index				
	Fruit Shape	**Skin Color**	**Coloration Rate**	**Clingstone or Freestone**	**Sensory characteristics**
Dajiubao	suborbicular, flat top, suture slight	Color slightly white, with red cheek	≥70%	Freestone	Flesh firm, hard melting, with a good acid/sweet balance
Qingfeng (Peking No. 26)	suborbicular, flat top, suture slight	Color greenish white, with red and yellow cheek	≥60%	Clingstone	Flesh firm, hard melting, with a sweet flavor
Jingyan (Peking No. 24)	suborbicular, flat top, suture slight	Color yellowish-white, with red cheek	≥70%	Clingstone	Flesh firm, delicate, tender, hard melting, having a delicate aroma and a sweet flavor
Yanhong (Green-making No. 9)	suborbicular, slightly compressed, flat yet emarginated top, suture slight	Color creamy white, with red cheek	≥80%	Clingstone	Flesh firm, delicate, juicy, hard melting, having a delicate aroma and a sweet flavor
August Crispy (Peking No. 33)	suborbicular, flat top, suture slight	Color creamy white, with red cheek	≥80%	Clingstone	Flesh firm, delicate, crispy, moderately juicy, hard

					melting, having a sweet flavor
Yanfeng No. 1	suborbicular, flat top, suture slight	Color yellow, with red cheek	⩾70%	Clingstone	Flesh firm, delicate, crispy, juicy, hard melting, having a sweet flavor
Luwangxian	Roundish oval, flat top, suture slight	Color yellow, with red cheek	⩾70%	Freestone	Flesh firm, subtle, crispy, moderately juicy, hard melting, having a sweet flavor
Huayu	Subrounded, top round and flat, suture slight, cavity moderately broad and shallow, mildly fuzzy skin	Color yellowish-white, over 1/2 of the fruit surface is rosy red or purple red, with a shining cheek	⩾70%	Freestone	Flesh hard, delicate and firm, hard melting, moderately juicy, low fibre, having a delicate aroma and a fine sweet flavor
Big Red Peach	Subrounded, top round and flat, suture slight	Color yellowish-white, with red cheek, fully colored, having a shining cheek	⩾70%	Clingstone	Flesh delicate and firm, hard melting, moderately juicy, low fibre, having a fine acid/sweet flavor
Century 21st	Rounded, top round and flat, suture slight, cavity moderately broad and shallow, low fuzz	Color creamy white, with red cheek and shining appearance	⩾70%	Clingstone	Flesh delicate and firm, soft melting, juicy, low fibre, having a fine sweet flavor

Following is the physiochemical indexes of 10 different varieties of Pinggu Da Tao:

Variety	**Index**		
	Soluble Solids (20°C),(%)	Total Acid (measured by malic acid),(%)	Weight of single fruit (g)
Dajiubao	⩾12.00	⩽0.20	⩾275
Qingfeng (Peking No. 26)	⩾11.50	⩽0.42	⩾200

Jingyan（Peking No. 24）	≥12.00	≤0.20	≥300
Yanhong (Green-making No. 9)	≥12.50	≤0.18	≥300
August Crispy (Peking No. 33)	≥11.00	≤0.20	≥300
Yanfeng No. 1	≥12.00	≤0.20	≥300
Luwangxian	≥11.50	≤0.28	≥300
Huayu	≥12.00	≤0.20	≥275
Big Red Peach	≥12.00	≤0.20	≥275
Century 21st	≥12.00	≤0.18	≥275

3. Geographical area

Situated in 40°02′ ～40°22′ north latitude and 116°55′ ～117°24′ east longitude, Pinggu District is the intersection where the south slope of the Yanshan Mountains and the north tip of Huabei Plain meet. It is surrounded by mountains from east, south and north sides with a plain valley in the center. Green mountains spread across the county. The Great Wall passes through the northern mountains in the county. The soil here belongs to mountainous brownearth; the climate here is the warm temperate zone continental monsoon climate type.

The **geographical** area of Pinggu Da Tao is cpmprised of 16 townships and villages currently under the administration of the Pinggu District, Beijing, namely, Zhengluoying Town, Dahuashan Town, Liujiadian Town, Yukou Town, Wangxinzhuang Town, Shandongzhuang Town, Xiagezhuang Town, Nandulehe Town, Jinhaihu Town, Machangying Town, Mafang Town, Donggaocun Town, Daxingzhuang Town, Pinggu Town, Huangsongyu County and Xiong'erzhai County.

Map of Geographical Area of Pinggu Da Tao

4. Proof of Origin

All the Pinggu Da Tao are harvested in the planting bases located in the protection areas. The material records of the company can trace down detailed information about the planting fields, purchased time and date, the yield in the protection area, etc.

The processing plants have established normative record and tracing systems concerning from planting to finished products.

The batch number was marked on the outer package of products, which can precisely indicate information on the manufacturer, packing date and the planting fields, etc.

5. Method of Production

I. Fruit Tree

Peach trees with well-developed root systems, and of high adaptability and strong disease resistance, are chosen.

II. Scions

Well-developed branches from trees at full fruit period are chosen as scions.

III. Grafting

We mainly take three ways of grafting: bud grafting, bud grafting with woodiness and tem grafting. Grafting time occurs in late July through mid-August, when bud grafting and bud grafting with woodiness are appropriate; bud grafting with woodiness and stem grafting are suitable in late March through early April.

IV. Planting

1. Plant spacing: （2． 5m-4m）×6m; planting on south-to-north rows is recommended.

2. Site preparation

High ridge planting technique is used in most sites except mountain regions and thin sandlots. The tree-bed is 1. 5 metres in width and 20 centimetres in height.

Excavation: the hole is around 80 centimetres in diametre where the top and bottom soil are piled separately.

Backfilling: backfilled with one third of the top soil, the excavation hole is treated with a 10 kg mixture of composed manure and the top soil, followed with the rest of the top soil and some water. Fruit trees are planted in the hole afterwards.

3. Selection of improved varieties and fine cultivars

Cultivars must possess at least three lateral roots which are no less than 20 centimetres in length; they must grow vigorously with a seedling height of 80 centimetres or greater, and with a basal diametre of no less than one centimetre. The cultivars must heal well after grafting without pest, disease or mechanical damage.

4. Time and Measures

(1)Time: Late march

(2)Measures:

Before planting all cultivars are sorted out so that seedlings in analogous stem diametre are planted in the same plot. Roots are pruned and wetted with solution of rooting powder No. 3 (root-inducing powder) and K-84. One gram of rooting powder (dissolved in liquor) is added with twenty kgs of water, solution of which can be used to soak 500~1,000 seedling plants. Roots are soaked in the solution for 30 minutes and then wetted with K-84 (the solution is prepared in the proportion of one water to one K-84 powder; please avoid metal containers). The seedlings are then planted immediately after being wetted. Cautions must be taken to spread the roots and

avoid planting them deep into the earth. The cultivars are irrigated and backfilled, leaving the basal diametre in the same level with the ground. To wrap up, each seedling is covered with one square metre plastic mulching so as to retain soil moisture and promote growth of the seedling.

(4) Heading height: cultivars are pruned, leaving a headed trunk height of 60~70 centimetres; they are then wrapped with plastic bags which shall be taken off by the time new sprouts grow one centimetre in height. Note that bags shall not be unwrapped before ventilation.

V. Shaping and Pruning

1. Shaping

Depending upon the difference of row spacing, you can choose “Y” shape or “Natural & Happy” shape alternatively.

(1) “Y” shape: for orchards with a row spacing equal to 3×6 M or less, two boughs per plant are left unpruned.

(2) “Natural & Happy” shape: for those with a row spacing equal to 4×6 M or greater, three boughs are left per plant.

2. Pruning

(1) Winter pruning for one-year-old fruit trees

First, select a bough and pull it at a 45 degree angle. Head of extensions on the main branches are not short cut. Remove all the secondary shoots on the top branches within 50cm. Leave 1~2 leaf buds on the bottom as pruning.

(2) Winter pruning for two/three-year-old fruit trees

Cut back the bough extensions and remove the secondary shoots 50 centimetres below the cut. For vigorously growing trees, moderate amount of secondary shoots can be left behind. Maintain the gradual growth of the main branches and pay attention to culture large-type fruiting or lateral branches. Thin the overcrowded branches and keep the fruiting branches loose without pruning.

(3) Winter pruning for fruiting trees

On pruning the extensions on the main branches: keep an approx. 1. 5 metre spacing between rows of plants. For vigorously growing trees, the pruning technique that

blocks the growth of the fruiting branches is adopted; in so doing, keep the extensions from short cutting, thin the flourishing branches and reserve the fruiting branches as many as possible; for moderately growing trees, prune to where the branches yield the most fruits; for feebly growing ones, prune to the effect that the growth of the branches is hastened, in this case, cutting back the sprouting branches using retractive pruning. Leave only the branches as deemed appropriate. Thin the feeble and keep only the flourishing branches. For trees with cross-over extensions and sufficient fruiting branches, retractively prune to the fruiting branches that grow to the good direction as deemed appropriate.

Keep at least 80 centimetres spacing among lateral branches, keep in mind to reserve and cultivate the fruiting branches of small to middle sizes.

On pruning of branch group and fruiting branches: the primary purpose of so doing is to reserve the side branches and prune the fruiting branch groups using flat pruning technique. Pay attention not to make fruit branches of bordering groups overlap, and to keep the fruit branches on the same side in a 30-centimetre spacing, or greater. Thin the branches that are overcrowded, upright, cross-over, overlapping or backing-off. Treat the aging branches using rejuvenating pruning technique, retractively prune them to the flourishing branches. Never cut back fruiting branches.

Shoot number: a total of 150,000~180,000 fruits per hectare, including 60,000~90,000 fruits on long fruit branches (30 centimetres or above in length). For product types that mostly yield on middle-to-short fruit branches, i. e. Yanfeng No. 1 and August Crispy, keep primarily the middle-to-short fruit branches (esp. short ones) while increasing, as deemed appropriate, the amount of branches unpruned.

VI. Wound protection: apply the home-made effective and economical protectant on big pruning wounds.

Preparing method of protectant: prepare it in the proportion of 0. 25 kg vaseline oil to 0. 5 kg paraffin wax. Specifically, melt the paraffin wax in heat and blend it with vaseline oil. Heat the mixture when using it. It is required that each wound is treated twice during the first year; specifically, one at the time of pruning, and one before the germination. In so doing, wounds are protected from further injuries and heal fast against wood rot, longicorn beetles, clearwing moths and buprestid beetles.

VII. Top-dressing on saplings

Apply appropriate amount of readily available fertilizer to the two-three-year-old trees in late March.

VIII. Remove (or nip) the floral buds

Starting from the bottom of fruiting branches, keep one pair of floral buds for every two pairs removed.

IX. Bud & Floral thinning

-- Time: when the flower buds turn red all through the period when blossoms start dropping.

-- Method: remove the ones smaller in size and leave only the bigger ones. Decide the bud & floral thinning amount according to the fruit setting amount (FSA).

X. Management of fertilizer and water at the pre-blossom stage

1. Types & quantity of top dressing

(1) There is no need for top dressing in the orchards having applied adequate base fertilizer in several consecutive years.

(2) When applying nitrogenous, phosphatic, and potassium fertilizers, use 300kg per hectare, or use the amount based on soil test or leaf analysis.

(3) We recommend that fermented cake fertilizers, i. e. sesame oil residue, soybean cake, cotton seed cake, rapeseed cake, sunflower cake etc. , or other forms of fertilizers, i. e. soybean flour, soybean milk and biogas liquid, be used as a substitute for chemical fertilizers.

(4) Quality bio-bacterial fertilizers are also recommended.

(5) Homemade blossom & fruit nutrient solution fertilizers are options.

2. time of top-dressing: one week before blossom.

3. Method of top-dressing: radial furrow dressing is adopted. In so doing, one needs to excavate 6~8 radial furrows 20 centimetres in depth and no less than 100 centimetres in length from the outward fringe of the tree crown vertical projection for in-furrow fertilizer (do not spray the fertilizer on soil surface directly). After the dressing, fill the furrows with earth and irrigate them.

4. Mulching and Moisture Conservation: As it is usually drought with few rainfall from April through June in this region, we advise fruit growers take measures to retain soil moisture by covering the soil with mulching.

5. Spraying of calcium fertilizer on leaves:

① Advantages: this method is to relieve fruits from pliable channels, saccharification and cracking kernels. It aims also at enhancing the fruit's resisitance to diseases and increasing its hardness, making it stabler for storage.

② Method: Spray 1000 times Gaidemei diluting solution once just before blossom and after petal fall respectively. Spray 1000 times Shengaixin diluting solution after fruit thinning. Spray 1000 times Calcium Amino Acid diluting solution before fruit bagging. From fruit bagging through harvesting stage, apply calcium fertilizer along with the solution before each spraying (make turns and spay in the aforesaid concentration).

XI. Branch pulling: pull the main branches at smaller angles in early April, to a 45 degree angle.

XII. Fruit thinning and setting

1. Fruit thinning: starting from two(2) weeks after petal fall, thin the early-maturing and high-yielding varieties, followed with other varieties. Thin first the small-sized, malformed and pest-stricken fruit. Fruit on early-maturing varieties is set once for all and go hand in hand with fruit thinning. Fruit on middle-to-late maturing, high-yielding varieties is double the amount than that is set. Fruit on middle-to-late,low-yielding varieties is 1. 5~2. 0 times more the amount that is set.

2. Fruit setting:

(1) Time of fruit setting: it is done in the middle and late May for early-maturing varieties and in early June for the rest varieties. Fruit setting for Yanfeng No. 1 is most suitable in late June, August Crispy (Peking No. 33) is set in the middle of July.

(2) Method of fruit setting: leave fruit on the top, rather than lower part, of the tree, preferably the branch tips, for harvest. Leave more on flourishing branches where the fruit grows in the upper and middle part.

(3) Fruit setting amount (FSA) per hectare for the main varieties: calculate FSA per plant based on arithmetic fruit thinning method.

XIII. Bagging and bag removal

1. Advantages of bagging: bagging is conducive to (1) the cleaniss and brilliance of fruit surface; (2) less pest and pesticide, hence safer fruit to eat; (3) decreased hail storm damage, and (4) increased economic benefit.

2. Chose of paper bags: single-layer, multi-colour bags, 18. 0×15. 5 centimetre or

greater in size, which is made of lucifugous, hydrophobic and pliable materials are chosen for the job. The bag should have a ribbon attached on its upper mouth and be slotted on the two corners of the bottom. For late maturing big-sized fruit, choose single-layer, multi-colour bags of 19. 0×17. 5 centimetre or greater in size.

3． Methods of determining the quality of fruit bags: (1) pouring water to the bag (by simulating natural rain fall). In case of bead-like water drops on the paper, the bag is of good waterproofing quality; in case of plate-like water shapes, the bag is of mediocre quality; in case paper is soaked by the poured water, the bag is of extremely poor quality. (2) Soaking in water. When twisting the paper bag with your hands, see if it becomes fluffing. In a non-fluffing scenario, the bag is of good flexural strength that leads to high resistance to wind and rain. (3) Pouring white liquor to paper surface, if it does not turn blackened, the bag is of good quality; if not, it is of poor quality.

4. Prior to bagging, spray the fruit one time with pesticide / germicide.

5. Method: take one bag, pull it off with your hand and wrap the young fruit into it. Fold the bag mouth horizontally and then fasten it to the branch. Never wrap any leaves into the bag. DO NOT wrap into the bag fruit with dew or rain.

6. Bag removing time and method: 15 days prior to maturity, unbag the fruit and observe the part where it is under sunlight. The time when the fruit turns from green to white is most suitable for removing the bag. Unbag the fruit in the upper peripheral branches before doing those in the lower inner ones. The bag removal takes two steps. Firstly, tear apart the bottom of the bag to allow fruit to adapt itself in the open air for two(2) days, then remove the bag completely.

XIV. Summer pruning:

1. “Removing the Umbrella”, which means pruning the upright light-blocking water sprouts with secondary shoots.

2. “Thinning the overcrowded”, which means thinning the over-grown branches and shoots.

3. “Opening the window”, which means pruning the overcrowded branch groups in the upper side branches.

The amount of branches and leaves pruned in the summer shall be no more than 15% of that in a tree, which in effect shall allow 30% of the soil under the tree to see sunlight.

XV. Application of composed manure in the fall

1. Time of the fertilizer application: The growth of root systems reaches their third peak phase from September through October when it is optimal for applying organic fertilizer.

Both air and soil temperature is suitable during this period. The application of fertilizer helps delay the aging of leaves, promote the development of flower buds and branches, improve the tree's nutrition carrying capability, strengthen its insect resistance and above all, lay down a sound foundation of a good quality harvest in the coming year. . .

2. Method of fertilizer application: ① Excavate 4 radial furrows 40 centimetres in depth and 40 centimetres in width from the outward fringe of the tree crown vertical projection for in-furrow fertilizer. The furrows become shallower inwardly. Apply the mixture of manure and earth into the furrows, then fill with earth and irrigate them. ② Method of improving the fertility of soil, saving water and applying fertilizer: Excavate a dual-purpose ditch 40 centimetres in width and 20 centimetres in depth, about 2 metres away from the trunk along the row, from the outward fringe of the tree crown vertical projection for irrigation and drainage. On the inner side of the ditch around 50 centimetres in width and length, excavate two fertilizer holes to fill with well-blended composed manure and earth. Create a slope from the trunk. Soak the soil inwardly and stop watering the soil near the trunk.

XVI. Harvesting

Harvest the fruit in a timely manner as per sales needs and fruit maturity status. Post-harvest treatment: management: stored the fruits in the refrigerator before being sorted and graded.

XVII. Packing: the packing process is carried out only by enterprises granted with an authorization to use the "Pinggu peach" GI labels under the supervision of competent quality inspection bodies.

(1) Packing materials: the outer package is made of corrugated cardboard boxes which should be firm and good for use in structure. It should keep dry, free from mildew, worm, pollution and odor.

(2) Packing requirements: fruits in the packaging box are kept in an orderly way. Different layers are separated by cardboards inside the box.

XVIII. Shipping and Storage:

During transportation, peach fruits should come in batches and be placed in an orderly manner so as to protect against pressure; the containers should keep clean with good air flow, no exposure to sunshine or rainfall; measures should also be taken to protect them from frost or high temperature.

Peach fruits should be handled carefully when unloaded; cold-chain transportation is recommended. The transportation vehicle should keep clean, free from toxic or hazardous materials and goods.

(1) Prior to storage, fruits shall be treated with a pre-cooling procedure, in which the temperature is set at 4℃.

(2) Storage temperature is 0℃~3℃.

(3) The relative humidity of the storage environment is set in a range of 85%~90%.

(4) If the storage house allows Controlled Atmosphere (CA), maintain the atmosphere condition at 1% O_2 and 5% CO_2.

(5) The storage room should be odorless. The fruits should be kept away from toxic or hazardous materials and goods; no toxic or hazardous preservatives or materials are allowed.

6. Causal link between the geographical area and the quality or characteristics of the product

The unique natural conditions of the growing regions, i. e. soil, water system, diurnal temperature difference, sunshine, and the highly standardized management level contribute to the characteristics and quality of Pinggu Da Tao.

1. Natural conditions

(1) Soil: Pinggu is located in a small mountain-surrounding basin formed by sediments of River Ju and River Ru. Comprised of sandy and foamy soil, with a pH value at 6-8, the soil in this area provide good air flow for plants; the soil is rich in mineral elements like iron, calcium and potassium as well, which is very suitable for the growth of big-sized peach.

(2) Quality of water: the area has an independent water system that is capable of providing high-quality water. Situated in a mountainous basin hydrogeological area, Pinggu has an independent underwater system that provides high quality subterranean water and pollution-free surface water.

(3) Climate:

Long sunlight time: the region enjoys an annual average total amount of radiation of 5,103 joule per square metre, and an annual average sunshine time of 2,876. 8 hours , and the rate of sunshine ratio reach 58%. The region has an accumulative > 10℃temperature of 4,611℃, fully capable of satisfying the growing needs of peach trees.

Wide different of diurnal temperature: The climate of Pinggu is a typical continental warm temperate zone and the monsoon climate. There is a big temperature difference inside the basin. The days when the temperature is between 22--25℃or below 30℃account for a big ratio in a year, which is conducive to sugar accumulation of peach.

2. Historical origins

There is a long history of peach cultivation in Pinggu. Records were found in the works done date back to as early as in Ming Dynasty. Liu Ai, the county magistrate of Pinggu in the Longqin period of the Ming Dynasty, made a poem, namely' *The Ancient Eight Sceneries of Pinggu*',on which the Pinggu Da Tao flower is highly praised as "Half way to the hilltop, the snow remains unmelted throughout the year. The peach CMarch, however, are yet to make its delicate sprout. When the sky is clear, look leisurely into the horizon, the moon, bright like a jade, is hovering under the clouds. "Emperor Qianlong of the Qin Dynasty also wrote a poem to descripe the peach blossoms in Pinggu:"…when the willow waves like a scene of light smoke, and the peach showers in the rain…".

3. Human dimentions

Pinggu Da Tao is rich in varieties. Local fruit growers have accumulated plentiful planting experiences owing to many years of production practices. Apart from that, fine varieties have been introduced, sorted out and disseminated to the farmers. People grow peach in Pinggu have never stopped their endeavor to innovate planting and management techniques. Therefore, the quality and output of the fruit have been gradually increased. Pinggu Da Tao has been specialty with strong local features.

7. Inspection Body

The Quality & Technical Supervision Bureau of Pinggu District, Beijing

Address: No. 7 South Wenhua Street, Pinggu District, Beijing

Zipcode: 101200

Telephone: +86- 010-69961761

8. Labeling

The packing marks for the same shipment shall be under uniform format and content.

Aside from the company's registered trademark, the name of the product with geographical indication protection in China – Pinggu Da Tao should also be printed on the fruit package and in a distinctly noticeable area on the packing box's exterior surface, together with the special GI mark and quality traceability code. In addition, such information as the variety, grade (specification), and net weight, country of origin and producer of the product should also be printed on the fruit package. The wordings should be legible and not easy to fall off. The mark on the outer package must conform to the actual product inside the box. It is not allowed to use any name including "Pinggu Da Tao", whether consecutive or disconnecting, if the products is not in conformity with any rules above.

9. Packing Requirements

The outer package is made of corrugated cardboard boxes which should reach the compression strength required. There are 2-4 vents per box. The inner package is wrapped with PVC or PEC materials.