

## **1. Name of the Product:**

**Shaanxi PingGuo**

## **2. Description of PGI or PDO Product:**

Shaanxi apple grows in the area of the Loess Plateau of Weibei Region, with high attitudes and plenty of sunshine and fertile soil. All of these special natural conditions contribute to its characteristics such as, “bright color for red varieties, beautiful for yellowish-green variety, thick cuticle, crisp flesh, appropriate taste of sweet and sour, long storage life and convenient for transport”.

The following are the sensory indexes of 5 different apple varieties which are suitable to produce Shaanxi apple:

The fruit should adequately grow to its fullness with clean peels, free from peculiar smell or odor, or contain unusual moisture coming from outer sources. It should reach the proper maturity fits for eating fresh or storage. The fruit should show the particular color and luster in maturity. The ‘moderate configuration’ index should be  $\geq 0.7$ .

The following are the Physiochemical index of 5 different apple varieties which is suitable to produce Shaanxi apple:

Variety	minimum fruit diameter (mm) ≥			minimum coloration area (%) ≥		
	Extra grade	Grade I	Grade II	Extra grade	Grade I	Grade II
<b>Fuji</b>	80	75	70	bright red 85	bright red 80	bright red 70
<b>Qinguan</b>	80	75	70	bright red 90	bright red 85	bright red 80
<b>Yuanshuai</b>	80	75	70	bright red 95	bright red 90	bright red 80
<b>Gala</b>	75	70	65	bright red 80	bright red 70	bright red 65
<b>Jinguan</b>	80	75	70	yellowish green	yellowish green	yellowish green

### 3. Geographic area

The GI production protection area of Shaanxi Apple covers all the towns and villages in the 15 counties and regions in Shaanxi province, including Baota Region, Fu County, Yichuan, Luochuan, Huangling, Yintai District, Yaozhou District, Yijun, Fengxiang, Baishui, Heyang, Xunyi, Yongshou, Changwu, Chunhua, as well as parts of the towns and villages within the 14 counties (cities or regions) i. e. Chencang District, Jintai District, Weibin District, Qishan, Fufeng, Longxian County, Qianyang, Pucheng, Chengcheng, Hancheng, Fuping, Liquan, Qianxian County, Binxian County.

The administrative areas covering 14 counties (cities and districts) for “Shaanxi Apple” under the protection of Geographic indications, see table 1

**Table1 The administrative areas covering 14 counties (cities and districts) for “Shaanxi Apple” under the protection of Geographic indications**

County / District		Towns & Villages under GI Protection
Chencang District		Zhouyuan Township Mui Township Xiangong Township Fenggeling Township Panlong Township Jiacun Township Qiao Township Township Diaowei Township Tianwang Township Pingtuo Township Xinjie Township Hudian Village Cisha Township Xiangquan Township Tuoshi Township (Total: 15)
Jintai District		Jinhe Village Lingyuan Village Xiashi Village Panxi Township (Total: 4)
Weibin		Bayu Township Chaoyu Village (Total: 2)

District	
Qishan County	Fengming Township Yidian Township Qinghua Township Pucun Township Zhuwangzhuang Township Caojia Township Zaolin Township Jingdang Village Daying Village Maiheyong Township Gujun Village Wuzhangyuan Township (Total: 12)
Fufeng County	Tiandu Township Nanyang Township Famen Township Zhanggong Township Xinglin Township Tiabai Village Chengguan Township (Total: 7)
Longxian County	Badu Township Dongfeng Township Duyang Township Lijiahe Village Lengdixia Township Dongnan Township Tiancheng Township Guguan Township Huashaozhai Village Caojiawan Township Wenshui Township Hebei Village Yake Village Chengguan Township (Total: 14)
Qianyang County	Chengguan Township Caobi Township Shuigou Township Wenjiapo Village Cuijiatou Township Shigou Village Nanzhai Township Zhangjiayuan Township Koujiahe Village Shajia'ao Village (Total: 10)
Pucheng County	Hanjing Township Dakong Village Gaoyang Township Shangwang Village Luobin Township (Total: 5)
Chengcheng County	Shanhua Village Fengyuan Township Wangzhuang Township Zhaozhuang Township Luoiaqi Village Zhangtou Village Anli Village Chengguan Township Jiaodao Township Lejiaqi Village Raotou Township Liujiaqi Village (Total: 12)
Hancheng City	Weidong Village Longting Township Zhiyang Township Jinchengban Qiaozixuan Village Zhichuan Township Banqiao Village Xizhuang Township Longmen Township Xinchengban (Total: 10)
Fuping County	Mizi Village Dancun Township Zhuangli Township Qicun Village Meijiaping Township Gongli Township Baimiao Village Cuocun Township Xiaohui Village Didian Village Xue Township Meiyuan Township Laomiao Township Yuling Village (Total: 14)
Liquan County	Yanxia Township Zhao Township Zhaoling Village Jianling Township Chagan Township Nanfang Township Shitan Township (Total: 7)
Qianxian County	Moxi Village Chengguan Township Shiniu Village Linping Township Yanghong Township Xinyang Village Fengyang Township Guantou Village Yangyu Township Liangshan Village Linyuan Township Zhoucheng Village Liangcun Township Wangcun Township Zhugan Township (Total: 15)
Binxian County	Longgao Township Xiangmiao Village Tandian Village Xiaozhang Township Xinpuzi Village Xinmin Township Yangle Township Yimen Township Xipo Village Chengguan Township Taiyu Village Shuikou Township Beiji Township (Total: 13)



Figure 1 The administrative areas for “Shaanxi Apple” under the protection of Geographic indications

#### 4. Proof of Origin

All the apples are harvested in the plantation bases located in the protected 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, and so on..

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 the information on the manufacturer, packing date and the planting fields, etc.

#### 5. Production Method (See Attachment 1)

**Attachment 1: Specific steps in production that must take place in the identified geographical area**

**5.1. Planting density:** for vigorous rootstock apple trees, plant 33-37 trees per mu; for the spur type or dwarfing trees, plant no more than 55 trees per mu.

**5.2. Seedlings:** according to new garden construction standards, all the seedlings should be first grade ones. The seedlings should be higher than 1.2 meters and more than 1.2 centimeters in diameter, with more than five lateral roots over 20-centimeter in length; the seedlings must be fresh and alive, free from any damage and dehydration conditions.

**5.3 Planting time:** starts from the last third of October and ends before soil begins to freeze up.

**5.4 Specification on planting:** the following techniques are applied when planting Shaanxi Apple trees: prepare site early, dig sufficient, hole for the seedling, apply sufficient fertilizers (organic fertilizer), soak the seedling in mud, and water the seedlings thoroughly until the soil is fully saturated. These techniques should be conducted in order to ensure the vitality of seedlings. Always keep the apple ranch tidy and in good order.

**5.5. Post-planting management:** after the planting, lay the seedlings down and bury them with soil to prevent sprouting so as to make sure they survive the winter safe and sound.

#### **5.6. Fertilization management**

Apply both organic fertilizer and chemical fertilizers containing nitrogen, phosphorus and potassium, and desirably composed of ten elements (N, P, K, Ca, Mg, Cu, Fe, Mn, Zn, B). The organic fertilizer is applied in a ratio of 1~2 units of fertilizer for 1 unit of harvested fruit, while the chemical fertilizer is applied in a ratio of 1:1:0.5 (N:P<sub>2</sub>O<sub>5</sub>: K<sub>2</sub>O) for each hundred units of harvest fruit weight (for which it is assumed that 0.8-1.2 units of nitrogen (active ingredient) would be needed).

#### **5.7. Shaping and Pruning**

It is recommended that apple trees keep the “slender spindle-like” shape, “free-form spindle-like” shape or “improved spindle-like” shape. Pruning the diseased and pest-carrying branches is pruned in the winter; remove the diseased or stiff fruits off the tree. Promote pruning management during the apple trees’ growing season. Pruned the tree in time to thin out to help branches growing vertically and vigorously, side branches that are too long or dense to avoid leggy growth, or any shoot at the graft, so as to increase exposure to sunlight and air.

#### **5.8 Flower and Fruit Management**

##### **5.8.1 Bagging Fruit:**

Popularize all the techniques of bagging fruit, including shaping and pruning, application of organic fertilizer, selection of fruit bag, adding calcium, spraying insecticide before bagging, regular inspection on bagged fruit, timely removal of fruit bag, leaf picking towards fruit maturity, and harvesting in time, etc.

##### **5.8.2 Flower & Fruit Thinning**

Do the thinning at an early date and strictly follow the thinning techniques; it is recommended that the apples be spaced 10 to 15 cm apart on a branch for small-sized fruits; 15 to 20 cm apart for middle-sized fruits and 20-25 cm apart for large-sized fruits. Artificial pollination is recommended

so as to increase the size and enhance the shape of the fruit.

## **5.9 Post-harvest Treatment**

It is recommended that apples be harvested in stages; measures should be taken to increase storage capacity, attach more importance to the grading and packaging, as well as the marketing, of products.

## **6. Packaging, storage and transportation in detail to see attachment 2**

### **6.1 Packing**

#### **6.1.1 Materials**

6.1.1.1 The packing material should be dry, clean and sanitary, with no peculiar odor; the ink and glue of the packing material and preparation marks should be innocuous and should do no harm to the human body.

6.1.1.2 External packing: Neither the inside nor the outside of the corrugated cases or calcium-plastic cartons used for packaging should have any protruding nail heads, spines, or other projecting materials, and can provide sufficient protective value for products. The durability of products should meet the requirements for 500kg of weight and the amount of compression should be smaller than 2 cm.

6.1.1.3 Inner packing: The fruit packing material should be plastic foam screen or clean wrapping paper, and the packing material used for layering should either be pallet or stratified paper plates.

#### **6.1.2 Packing specifications**

It is suggested to use packing boxes of three kinds: 5kg, 7.5kg and 10kg; it is preferable to have box shaped packing, but different designs of packaging can be used for fruit intended as a gift.

#### **6.1.3 Packing requirements**

6.1.3.1 Every packing case should be packed with the fruits of the same variety, same grade and same maturity; the drop-in of apples from different grades (grade adjacent apples) should be no more than 2%; no rotten apples (including over mature apples), unripe apples or diseased apples are allowed.

6.1.3.2 In packing, make sure every packing case is accurate in weight, with the error less than 2%.

6.1.3.3 The box should be fully filled to avoid shaking of the fruits.

### **6.2 Transportation and storage:**

6.2.1 After the harvest of apples, according to the quality requirements specified in the Standard, picking and grading should be conducted immediately and arranged shipment by the producers to sell or process for as soon as possible.

6.2.2 Apples awaiting transit at ports or other stops should be orderly piled up and clearly categorized according to their batch. The place in which they are piled should have a clean

environment, good ventilation with no exposure to sunlight or rain. Note: pay attention to anti-freezing and heat-proofing.

6.2.3 Apples should be handled with care during loading and unloading; and cold storage transportation is recommended. The transporting vehicles must be clean and sanitary without transporting with toxic or harmful materials.

6.2.4 No peculiar odor, mixed storage with toxic and harmful material and no toxic or harmful anti-staling agents are allowed in the warehouse.

## **7. Causal link between the geographical area and the quality or characteristics of the product**

The part of the Loess Plateau of Weibei Region in Shaanxi covers (on a latitudinal basis) the warm zone, the warm temperate zone and the north subtropical zone. It lies just south of the Yellow River and just north of the Yangtze River. The area is located in high altitudes and has a wide range of diurnal temperatures; it is covered by a dusty soil layer rich in microelements such as K, Ca, Mn, Zn, Se and etc. The main terrain is ravines and gullies with loessial soil as its primary soil type. The climate here belongs to a semi-humid to semi-arid type

### **7.1 Natural conditions**

#### **7.1.1 Soil:**

The thick soil layer that covers the apple production area of Shaanxi Province is as deep as 80~200 meters into the ground. The soft loess, contributes to the good air flow and moisture & fertility preserving conditions very beneficial to the development of the apple tree's root system; it is also a guarantee that provides the necessary water and nutrients to meet the growth needs of the tree and fruit; as such, the soil here constitutes the basic conditions for the fruit quality, hence the specificity, of Shaanxi Apple.

#### **7.1.2 Climate:**

The growing area of Shaanxi apple is 800-1200 meters above sea level, with an illumination intensity of 3500-50000 cd and an annual sunshine rate of 2200-2400 hours. From August to September, the sunlight is over 300 hours. The high altitudes result in sufficient sunshine for fruits, making them brightly colored with a thickened layer of cuticular wax and an added level of sugar, acid and vitamin C contents; they also contribute to the increased hardness of the apple.

The wide range of diurnal temperatures contributes to the relatively higher level of nutrient content accumulation in the apple tree, making the fruit high in sugar content and popular with a special flavor.

Water needed for the apple's growth comes from natural rainfalls. The apple production area of Shaanxi Province has a moderate rainfall throughout the year, with an annual rainfall reaching 560-750 mm. The air humidity is relatively low here, unfavorable for the propagation and growth of pests and insects, hence less varieties and smaller risks of diseases and pests in the area.

### **7.2 Human dimension**

The popularization and application of the four key techniques, namely, “big reshaping, strong branch drawing, skillful fertilization and nuisance-free production” has greatly increased the quality and the safety level of Shaanxi apple. The apple produced in the Weibei region was once one of the tributes to court and high-quality specialty with a long standing reputation in China and abroad.

## **8. Inspection Body**

Quality and Technical Supervision Bureau of Shaanxi Province

Address: 8/F, Provincial Government Building, Xinchengdayuan, Xi'an, Shaanxi, P. R. China

Postcode: 710006

Telephone: +86-29-87292236

## **9. Labeling**

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

9.2 Besides the company's registered trademark, the name of the GI protected product in China—Shaanxi Apple, should also be print 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), net weight, country of origin and manufacturer should be indicated on the package as well. The words should be legible and not easy to fall off. The mark on the outer package must conform to the actual product inside the box; the special marks of products should be labeled on the surface of the box.

## **10. Legislative Requirements of the State**

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#### 9. Post-harvest Treatment

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## **5.2 Specificity of the product**

### **5.2.1 Brightly colored**

Color is one of the most important indexes for the apple's appearance and its commercial value. The excellent coloring of Shaanxi Apple is largely owing to its early and easy of coloring. As a result, it is brightly colored with a large coloring area.

### **5.2.2 Thick cuticular layers**

The cuticular layer provides many of the nutrients and other substances that constitute to the health value of apple. The thickness of the cuticular layer of Shaanxi Apple is reflected by the thick stratum, clean, unblemished surface, and the high pectin content.

### **5.2.3 Strong flavor**

Flavor is one of the most important indexes for the apple's internal quality. The strong flavor of Shaanxi Apple is evidenced by its high sugar content, its crisp fruit flesh, its strong fragrance and its abundant nutrients.

### **5.2.4 Tolerance for storage and transport**

Suitability for storage and transportation is a very important factor for ensuring year-round sales, which can prolong apple's shelf life, make it convenient for international trade and increasing its added value. Shaanxi Apple has a thick skin, a lot of waxy substances in the flesh, compact fruit, a high level of solidness and a high content of dissolvable solids. All of these features give the Shaanxi apple a high tolerance for storage and transportation.

## **5.3 Causal link between the geographical area and the quality or characteristics of the product (for PDO) or a specific quality, the reputation or other characteristic of the product (for PGI).**

The part of the Loess Plateau north to the Weihe River in Shaanxi is an area where ravines and gullies criss-cross, with thick layer of fertile soil spreading across the vast hilltops and dry tablelands; the climate there is ideal for the growth of apple trees. The unique natural conditions and cultural heritage have given rise to the specificity of Shaanxi Apple.