

## Precision Rice Hill-drop Drilling Machine

The cover photo shows a new type Precision Rice Hill-drop Drilling Machine developed by South China Agricultural University led by project leader Prof. Luo Xiwen. The technical characteristics of the precision rice hill-drop drilling machine are as follows:

### 1 It can meet well with the requirement of rice planting

- (1) It can open the furrow, form the ridge and sow the seeds simultaneously, save water and reduce lodging.



- (2) The row spacing, includes 20cm, 25cm, 30cm and 15+35cm. The hill spacing can be adjusted from 10cm to 25cm.  
 (3) The number of sowing seeds can be adjusted from 2 to 6 grains.  
 (4) There is in one seed hopper for every feed and it can meet some special requirement of rice planting, such as rice seed production and mixed planting of different rice varieties.  
 (5) There is no damage to rice seedling root. It can increase 2~3 tillering points and reduce the fertilizer application.  
 (6) The rice seedling grows in row and hill and the microclimate is better. It can reduce the pest and disease significantly.  
 (7) It can save the rice seeds significantly compared to manual broadcasting.

### 2 The innovation of precision hill-drop drilling feed

- (1) The cell wheel feed is optimally designed to realize precision hill-drop drilling.  
 (2) An inner cleaning device is specially designed to clean the seeds in the cell.  
 (3) Two feed-rooms are used to ensure the rice seeds to feed into the cell of wheel.  
 (4) The heights of the control plate and the cleaning wheel can be adjusted to control the number of sowing seeds.  
 (5) A special rubber guard device is developed to replace the traditional guard ring and it can rotate with the cell wheel simultaneously and reduce the rate of damaged seeds significantly.

### 3 The innovation of precision rice hill-drop drilling machine

- (1) The chassis of riding rice transplanter is used as the chassis, which is four-wheel driven and can work well in the deep paddy field.  
 (2) The feeds are driven by the power of the chassis and it can reduce the slipping of traditional landwheel.  
 (3) The float is optimally designed to smooth the field surface before sowing.  
 (4) Two small floats are used to control the lift and fall of the float.

### 4 The working effectiveness is high

The working width is 2m for 10 row with 20cm row spacing, 2.4m for 12 row with 20cm row spacing and 2.8m for 14 row with 20cm row spacing, 2.5m for 10 row with 25cm row spacing and 3m for 12 row with 25cm row spacing, 3m for 10 row with 30cm row spacing, 2.5m for 10 row with 15cm+35cm row spacing. The working effectiveness is more than 0.3hm<sup>2</sup>/h.

### 5 The precision hill-drop drilling rice yield is high

Since 2006, the precision rice hill-drop drilling machines have been used to sow rice with different varieties more than 200 hm<sup>2</sup> of land in different seasons, different soil conditions in 10 Provinces in China, including Guangdong, Guangxi, Hainan, Hunan, Hubei, Jiangxi, Anhui, Zhejiang, Heilongjiang and Yunnan Provinces. The rice yield sowed by the precision rice hill-drop drilling machine increases by 10%, 8%, 5% respectively compared with those by manual broadcasting, manual seeding broadcasting, mechanical transplanting and manual transplanting.

