Study on Rice Combine Harvest Technology and Equipment

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Content

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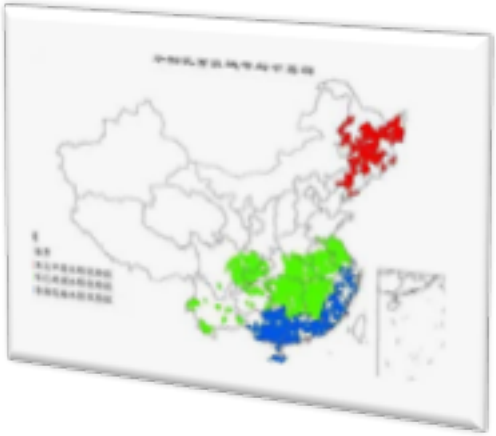
CURRENT SITUATION OF RICE PLANTING AND MECHANIZED HARVEST IN CHINA

1-1 Current situation of rice planting in China -- Planting situation



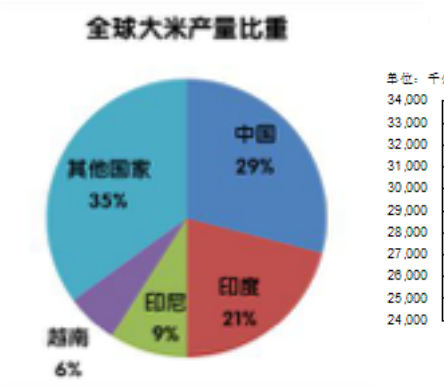
- **Rice, corn, wheat, potato are four main food source, which accounts for 50% of the world's food source;**
- China's annual planting area of about 450 million mu (30% of grain planting area), the total output of more than 180 million tons (accounting for 40% of total grain output), 150 million households (60% of the total number of households);
- There are three main dominant regions: Northeast China Plain, Yangtze River Basin and Southeastern coast.

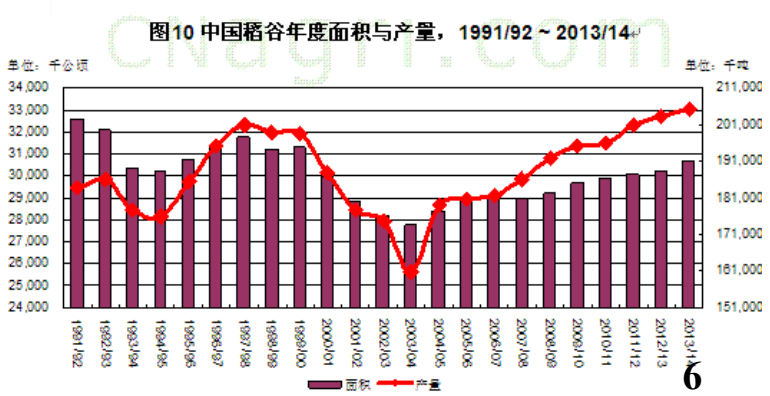
1-2 Current situation of rice planting in China: Cultivar zoning

- Cultivar: single, double and three season rice;
- Planting zones: double crops in Southern China and Central China, single and double crops in Southwest Plateau, single crops in Northern China, Single crops of premature rice in Northeast China and dry single crops in Northwest China.

1-3 Current situation of rice planting in China --- yield

- Total rice production in China is expected to reach 207 million tons in 2017;
- The world average yield of 278 kg / mu of rice, the average yield of Chinese rice 450 kg / mu;
- In November 5, 2014, super rice "Y Liangyou 900" average yield of 1026.70 kg, marking China's success to achieve the fourth goal of super rice research (over 1000 kg per mu).





1-4 Mechanization level of rice production in China --- Complete mechanization

- In the period of 2004 - 2014, China 's agricultural machinery and equipment industry in the "strong agriculture and farmers to enrich the people" policy to promote the rapid development, in the era of mechanization / semi - automation;
- In 2015, China's rice cultivating level of 98.94%, machine broadcast level of 42.26%, the level of 86.21% of the harvest, the comprehensive level of farming mechanization 78.12%.

The year of 2011-2014 in model level diagram

		Middle and lower reaches of the Yangtze River	Southwest area	Yangtze river basin	Southern China rice	Northern China rice
	2011	93.62	51.7	64.29	54.16	79.63
	2012	93.04	57.3	67.29	60.87	79.91
	2013	93.1	57.92	69.78	65.49	82.67
	2014	93.56	58.09	80.95	72.49	86.88


Breeding →

Seeding →

Cultivation →

Plant →

Administration


Harvest →

Straw treatment →

Drying →

Storage

1-5 Rice mechanized harvest in China --- Mechanization of harvesting

◆ With the development of modern agriculture, mechanized harvest becomes more and more popular. In 2015, the ratio of rice mechanized harvest was 86.21%, the level of mechanized harvest of the Yangtze River Delta risen up to 93%.

Ongoing governmental policy support

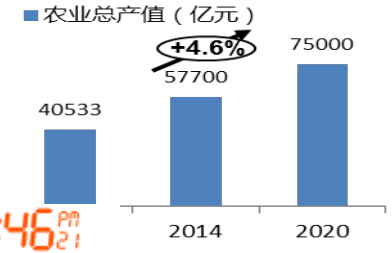
Land system reform	✓ Promoting the Reform of Contract Management Right of Agricultural Land in 2015. ✓ Avoiding non-grain and non-agricultural land for agricultural land.
Food price reform	✓ Enhance the price formation mechanism for agricultural products ✓ Increase farmers' income
Integration of Urbanization	✓ Increase investment in rural infrastructure ✓ Increase rural production factors

Transfer mode,adjust structure,as well as promote agricultural modernization

□ **On December 22, 2014, the central conference was organized about rural issues and emphasized**:

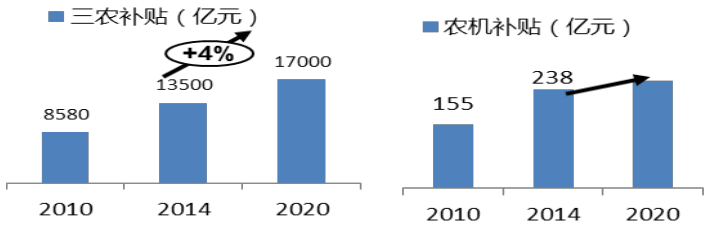
Develop agricultural industrialization	✓ Adjust the agricultural structure, from production-oriented to consumer-oriented ✓ Rely on science and technology support, bigger and stronger agricultural industry ✓ Promote the integration of one hundred and twenty-three industries, the development of new business entities
Promote agricultural modernization	✓ Ensure food security as the primary task ✓ Guide and standardize the flow of land management rights ✓ Moderate the operation scale to improve agricultural production efficiency
Increase capital input	✓ Regardless of financial difficulties it's necessary to ensure increasing investment into agriculture ✓ Innovate agricultural investment and financing mechanism, improve the financial support

Rapid agricultural development

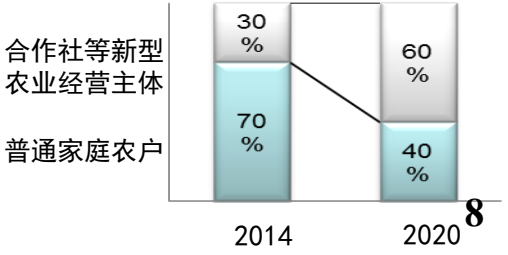


Increased capital investment

□ 中央对三农和农机补贴投入将持续增加

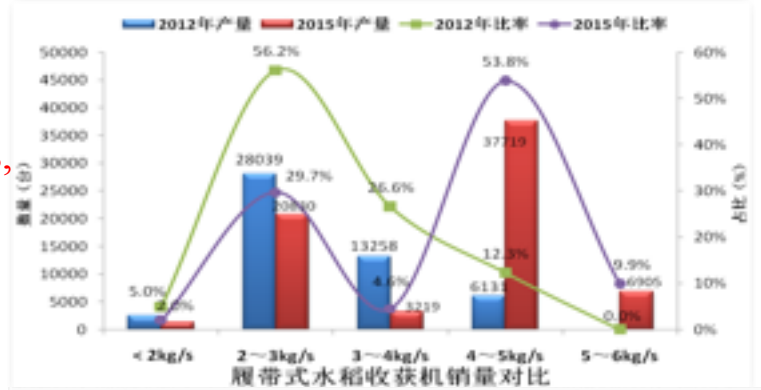


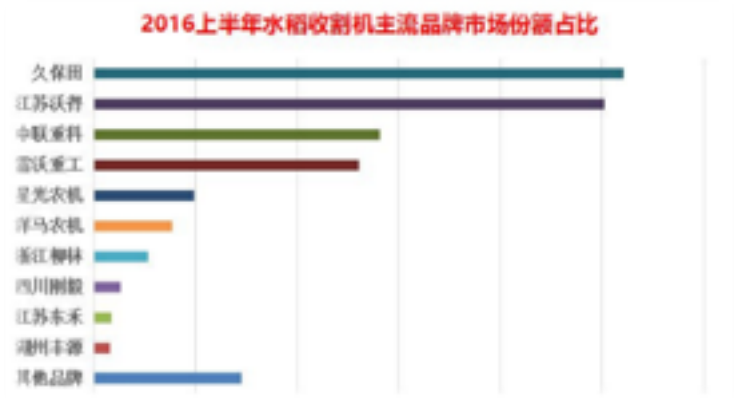
Customer structure change



1-6 The level of Rice mechanized harvest in China--Market demand

- In the period of 2012-2016, China has only 6~80,000 units rice combine harvester, to feed the amount of 2 ~ 4kg/s, including mainly crawler;
- Kubota, ZOOMLION, Futian, Jiangsu, Star farm, Zhejiang Liulin, Yanmar, etc..





数据来源：www.nongjitong.com/news/2016/396903.html

1-7 Rice mechanized harvest in China

Sectional harvesting

Full feeding combined harvesting

Semi feeding combined harvesting

1-7 Mechanized harvesting of rice in China – Segmented harvest

Harvester

Threshing machine

Binder

1-7 Mechanized rice harvesting in China -- full feeding

Combined harvesting

江苏沃德

星光农机

中机南方

中联重科

久保田

Caterpillar self-propelled

山东大丰

常发佳联

福田雷沃

山东时风

Wheeled piggyback

Wheeled self-propelled

1-7 Mechanized rice harvesting in China – Semi feeding combined harvesting

久保田

2 row machine

东风井关

久保田

4 row machine

韩国大同

久保田

5 row machine

日本井关

久保田

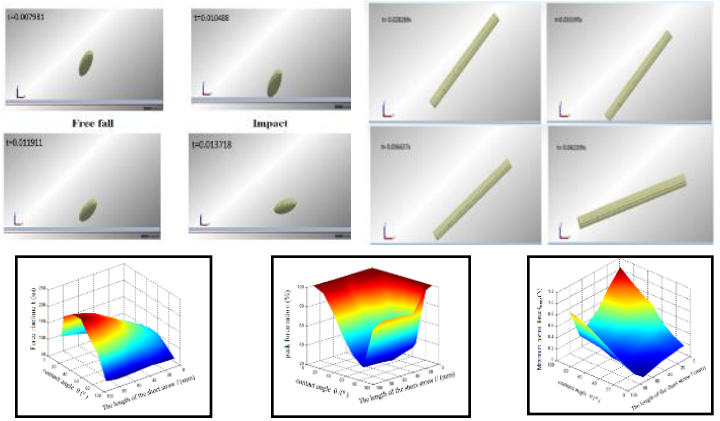
6 row machine

2

KEY TECHNIQUES OF RICE COMBINE HARVESTING IN CHINA

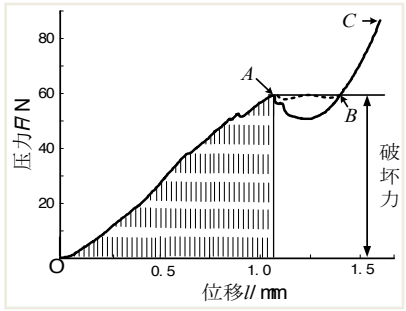
2-1 Key techniques of Rice Combine rice -- Biomechanical characteristics of rice

- The biomechanical properties of grain and grain, grain and stem, stem and stem, and the relationship between stem and stem were studied and to lay the foundation for simulation.

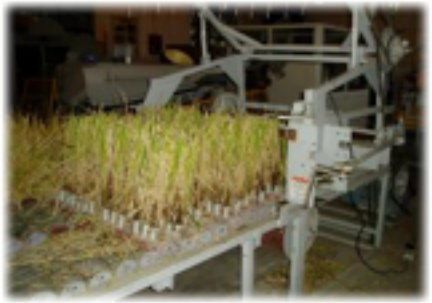


Simulation of Grain Stalk Collision in Rice

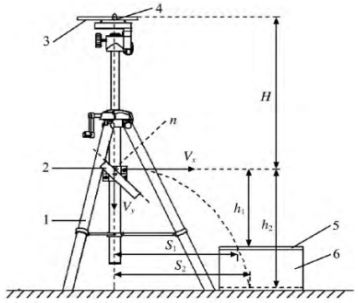
Determination of rice connectivity



Grain squeezing force - displacement curve



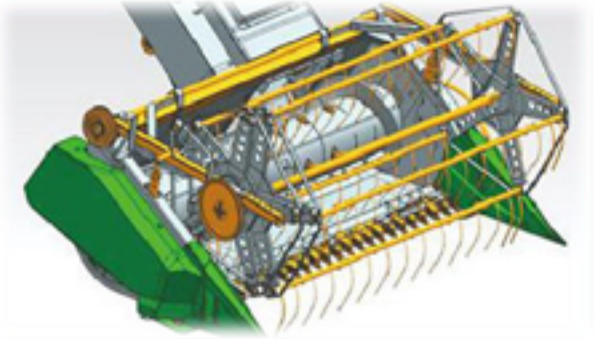
Rice multi - stem cutting test

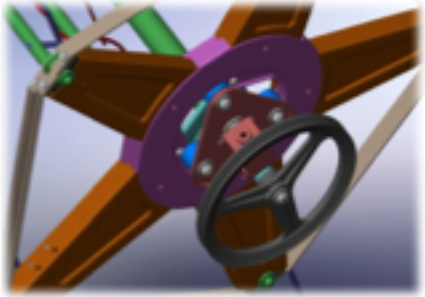


Rice Grain Collision Test

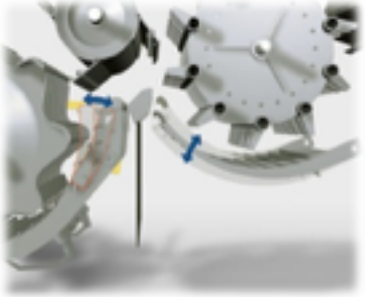
2-2 The key technique of rice combined harvesting -- Lightweight profiling platform

- A variety of electro hydraulic omni directional profiling platform is researched, which is suitable for various crops and terrain environment harvesting operations;
- Based on overload protection and detection of foreign matter needs to be installed on the cutting table, bridge set at the detection and disinfection device, to achieve overload alarm or foreign object alarm.





Omni directional lightweight profiling cutting table

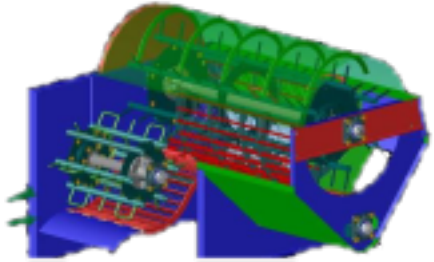


Anti vomit detection and overload alarm

2-3 High efficiency and low loss threshing separation technology for rice combined harvesting

- Under the natural growth environment, the ease of rice threshing is not only different from the breed, but also the same ear is easy to take off and the hereditary capacity of the grain is almost 20 times worse.
- The traditional horizontal (vertical) axial single drum threshing device in order to ensure the disintegration rate, increase thawing element impact, resulting in large damage to rice.
- To Zhejiang Liulin, Xingguang agricultural and Kubota company horizontal axis single roller,Cut cross-flow double roller and longitudinal axial single-drum threshing and separation device as the representative.

Cross flow single drum

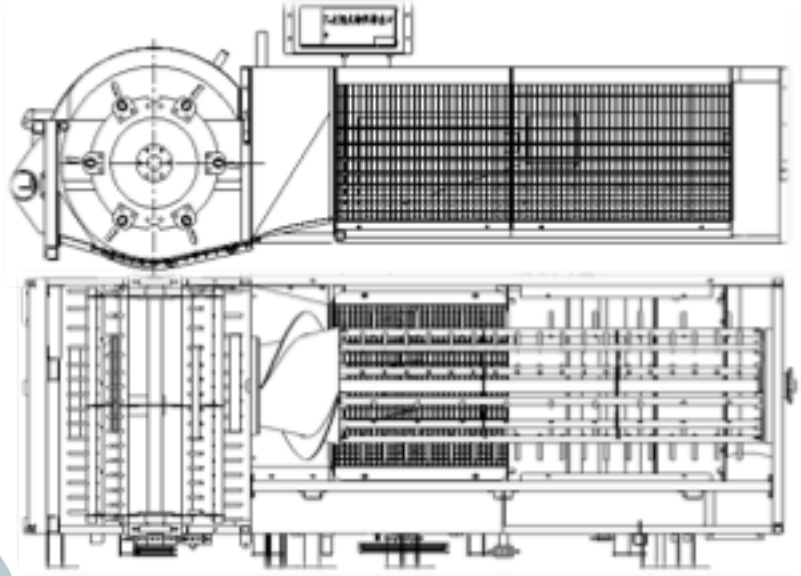


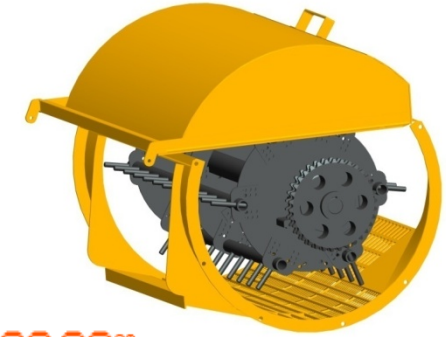
Cross cut double drum

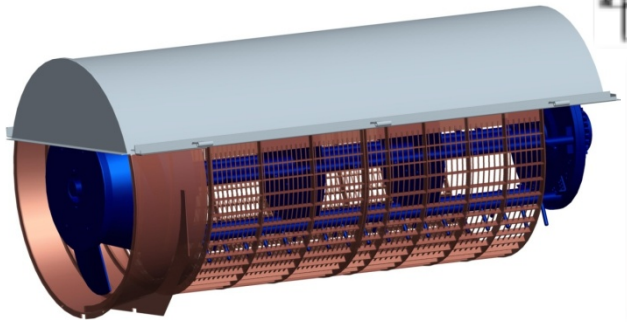
Longitudinal flow single drum

2-3 High efficiency and low loss threshing separation technology for rice combined harvesting

- Cutting drum + single longitudinal flow roller
  - Easy, difficult, and orderly threshing;
  - The initial threshing and partial separation of the crop was completed by the cutting off the initial separation device.
  - The separation of the hardened crop and the remaining grain is completed by the vertical axis reciprocating device







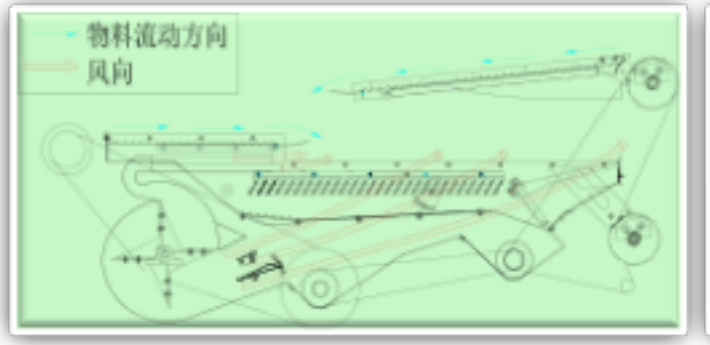
Slot flow threshing and separation device

2-4 Key technologies of rice joint harvesting – High efficiency multi channel cleaning technology

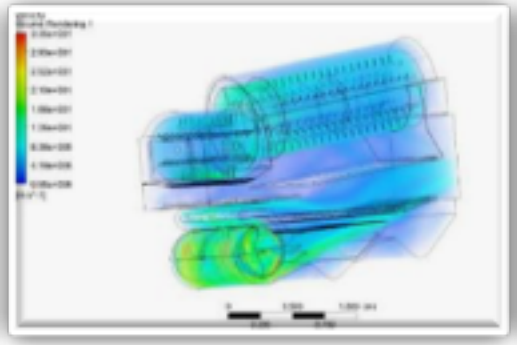
◆ The high yield rice extract has large feeding capacity and high water content, so it is difficult to screen through rapid stratification, resulting in large cleaning loss and high impurity content in rice;

◆ A method of multi channel cleaning is put forward. Through cleaning, the light air is blown out directly from the upper air duct, thus reducing the cleaning load. The three air ducts of the lower air outlet cover the front of the sieve, the sieve and the sieve tail respectively, and improve the cleaning performance and efficiency through a plurality of air current blowing support.

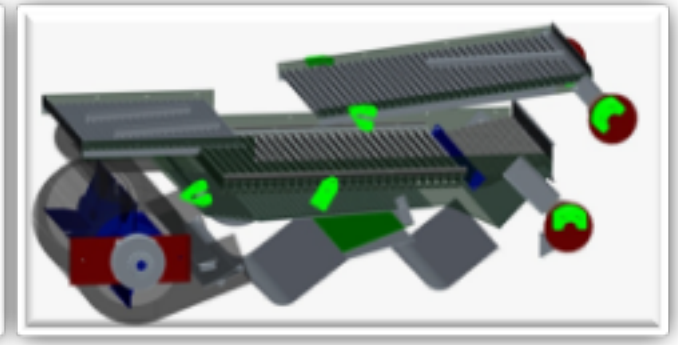
The cleaning rate is high



The cleaning rate is high



The cleaning rate is high



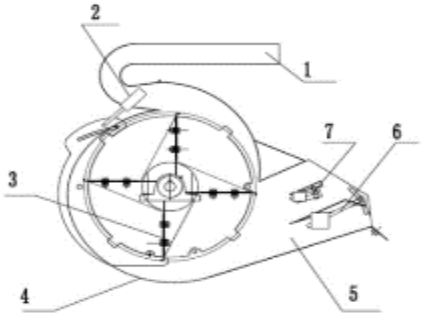
Multi air duct wind screen type cleaning device

2-4 Key technologies of rice joint harvesting – High efficiency multi channel cleaning technology

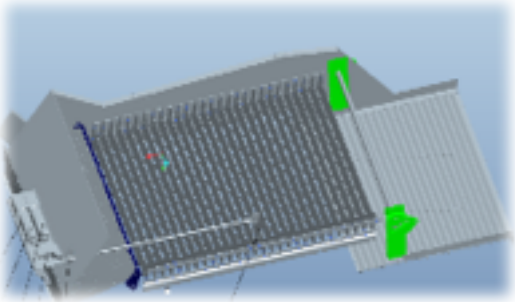
◆ Adaptive control cleaning technology

➢ By monitoring the air inlet fan opening, outlet wind plate angle, sieve opening, fan speed, vibration sieve, a return plate vibration frequency and other operating parameters, the cleaning device operation state parameter monitoring and cleaning performance of the adaptive control model to realize intelligent control of Qing transferring section.

Adaptive control, cleaning technology, test bench



Air inlet opening and fan angle adjustable fan

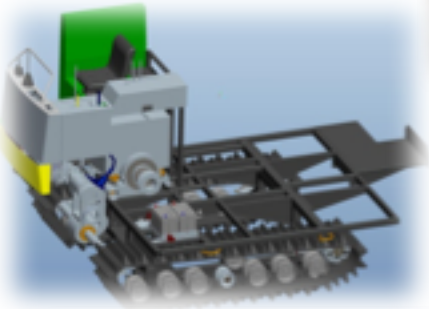


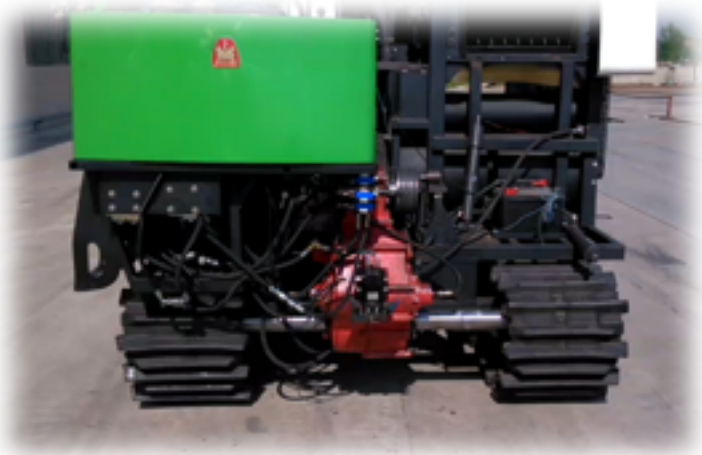
Vibrating screen with adjustable angle of scale sieve

Grain cleaning loss monitoring sensor

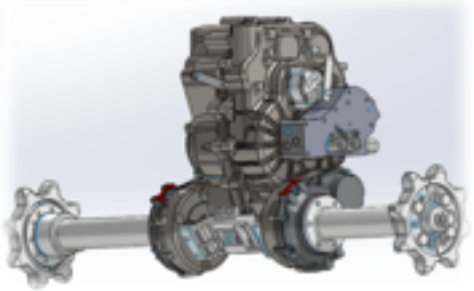
2-5 Key technology of rice combine fields – Deep mud chassis driving technology

◆ In order to solve the problem of slipping and sagging in deep mud field, deep mud field harvesting technology, differential steering technology and track leveling technology are used to develop the in situ steering variable speed crawler walking chassis, double pump double motor side Driven walking chassis and other components.



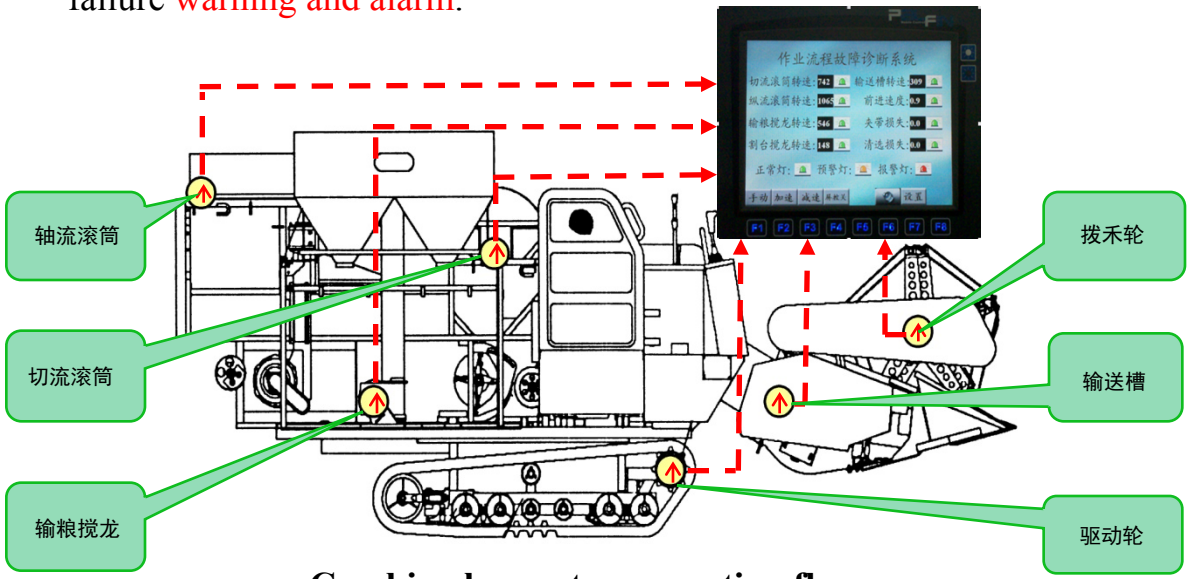


Differential steering, single turn and in turn



2-6 Key technology of rice joint harvest – Operation flow and fault diagnosis technology

- Machine automation, information and intelligent;
- To achieve the joint harvester failure classification warning and alarm, complete the operation process Parameter real-time monitoring, critical component failure warning and alarm.



Combine harvester, operation flow, fault diagnosis

Fault diagnosis device

Job parameter monitoring

Cleaning loss monitoring

2-7 Performance optimization and reliability test of rice combined harvester

- Perform the performance test of the key components; optimize the structure and the movement parameters;
- Carry out vibration reduction, noise reduction and reliability test to improve the trouble free operation time of the whole machine.

Longitudinal flow threshing and separating

Multi drum threshing and separating test stand

Multi fan cleaning test stand

Threshing and separating element

Threshing table before cutting

Noise test set

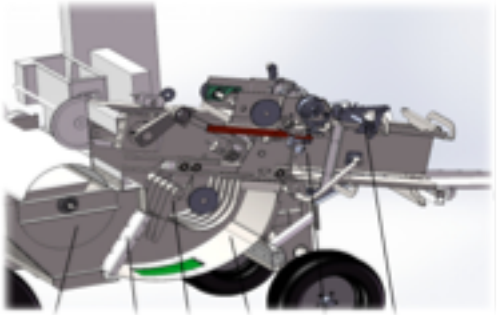
Vibration testing device

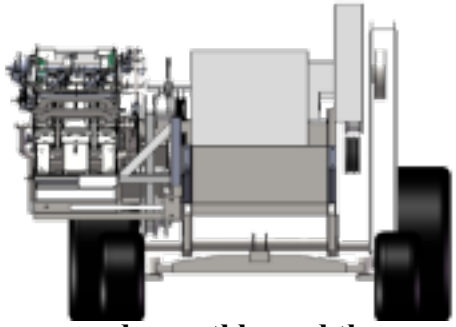
Transmission reliability test bed

Noise test set

2-8 Integrated rice straw harvesting technology -- Straw integrated treatment technology

- The quality of straw returning to field and the requirement of intercropping and agronomy
- Throwing technique, such as impeller air throwing technology
- Bundling technique





Under the feeding arrangement, the straw is conveyed smoothly, and the ground clearance of the feeding device is increased. The compressing and bundling device is arranged on the right side of the machine, and the sectional dimension of the bale is 40cm*50cm, and the weight is 20kg~25kg.

2-9 Key technology of Rice Combination harvesting -- Harvesting techniques in Hilly Areas

- Solve machine transfer problems; break through new principles, mechanisms, and devices
- Lightweight cutting, feeding, stripping, and chassis technologies
- Technology of electric shift and hydraulic gear shift gearbox
- Power shift gear transmission technology

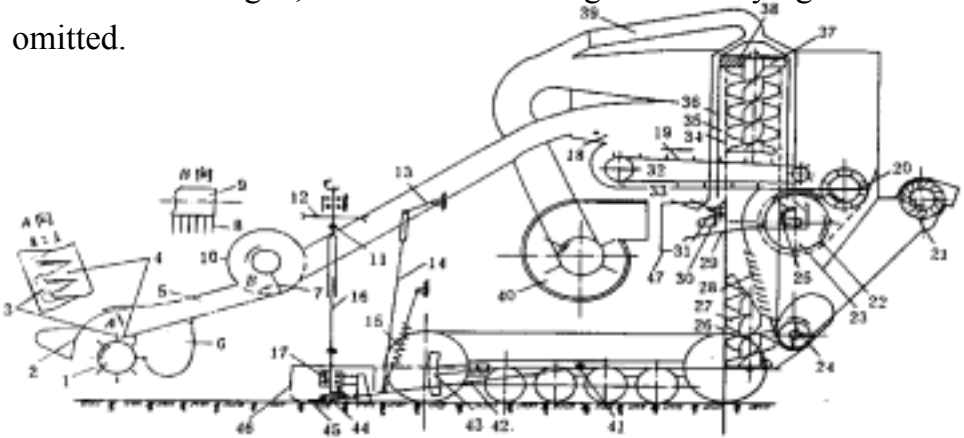
Harvesting in hilly area is just a part of a issue, the main problem is: header after miniaturization of rice high adaptability; axial flow device reduced in size after the threshing loss is too large; most machine cleaning system is simple (wind election), or no Cleaning system, and some machines with a narrow "fan - vibrating screen" cleaning system, due to the size is too small and unreasonable parameters, making the grain after the removal of high rates, clear loss of loss.

2-10 Key technology of rice joint harvesting -- Ratooning rice harvesting technology

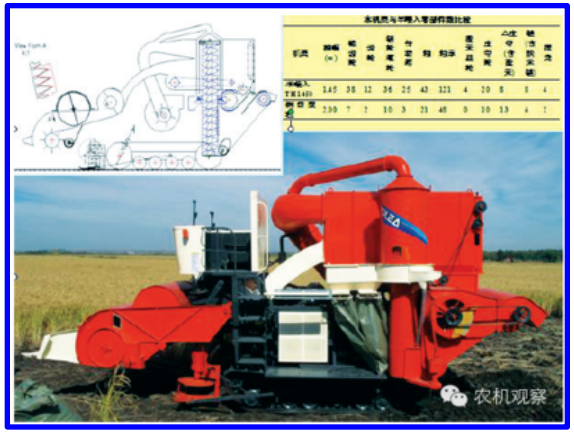
◆ Aiming at the serious problem of stubble failure of ratooning rice (double cropping rice), the existing harvesting machine focuses on the regeneration of rice cultivar.

2-11 Key technology of rice combined harvesting -- Threshing and harvesting before cutting

- When the field work is carried out, the front threshing drum continuously thresh the Rice Panicle in the field, and the extract is sucked away by the air stream;
- The threshing cylinder assembly after cutting, will cut off after removal of stems in the field of drawing;
- The harvesting process of the traditional half feeding combine harvester is changed, and the stalk holding and conveying device is omitted.



4ZTL-1800 type cutting off rice (wheat) combine harvester



2-12 Challenges of rice joint harvest technology in China

Urgent breakthroughs in key technologies

- Can protect the large amount of feed efficient cleaning technology
- Advanced horizontal / vertical multi drum threshing technology for increasing feed volume
- Reliable and practical techniques for grain loss, crushing, flow and moisture determination
- Intelligent and information technology based on information fusion and processing
- Ergonomic and intelligent manipulation of cab
- Advanced and flexible chassis technology
- Vibration reduction, vibration isolation and sound insulation and noise reduction technology

3

INTERNATIONAL ADVANCED RICE HARVESTING TECHNOLOGY

3-1 Advanced technology of international advanced combine harvester

- Operation speed and feed rate
- Operating width and storage capacity
- High efficiency threshing and separating performance
- Adaptation to crop and topographic properties
- Driving comfort performance
- Automation and intelligence

3-2 Main technical characteristics of international advanced combine - - Speed of operation and quantity of feed

Speed of operation and promote of feed quantity

Configuration Power: 434 kW

Operation speed: 30 km /h (8.3m/s)

Feeding quantity: 10~15 kg /s

New Holland CR9090

3-3 Main technical characteristics of international advanced combine - -Width of operation and storage capacity

The width of operation and the storage capaci
granary increased

Operating width: 6~8 M
Capacity of granary: 5~8 M3
Operation efficiency: 9~16 hm2 /h

3-3 Main technical characteristics of international advanced combine - -Width of operation and storage capacity

Overhead folding granary

3-3 Main technical characteristics of international advanced combine -- Width of operation and storage capacity

Overhead folding granary

3-3 Main technical characteristics of international advanced combine - -Width of operation and storage capacity

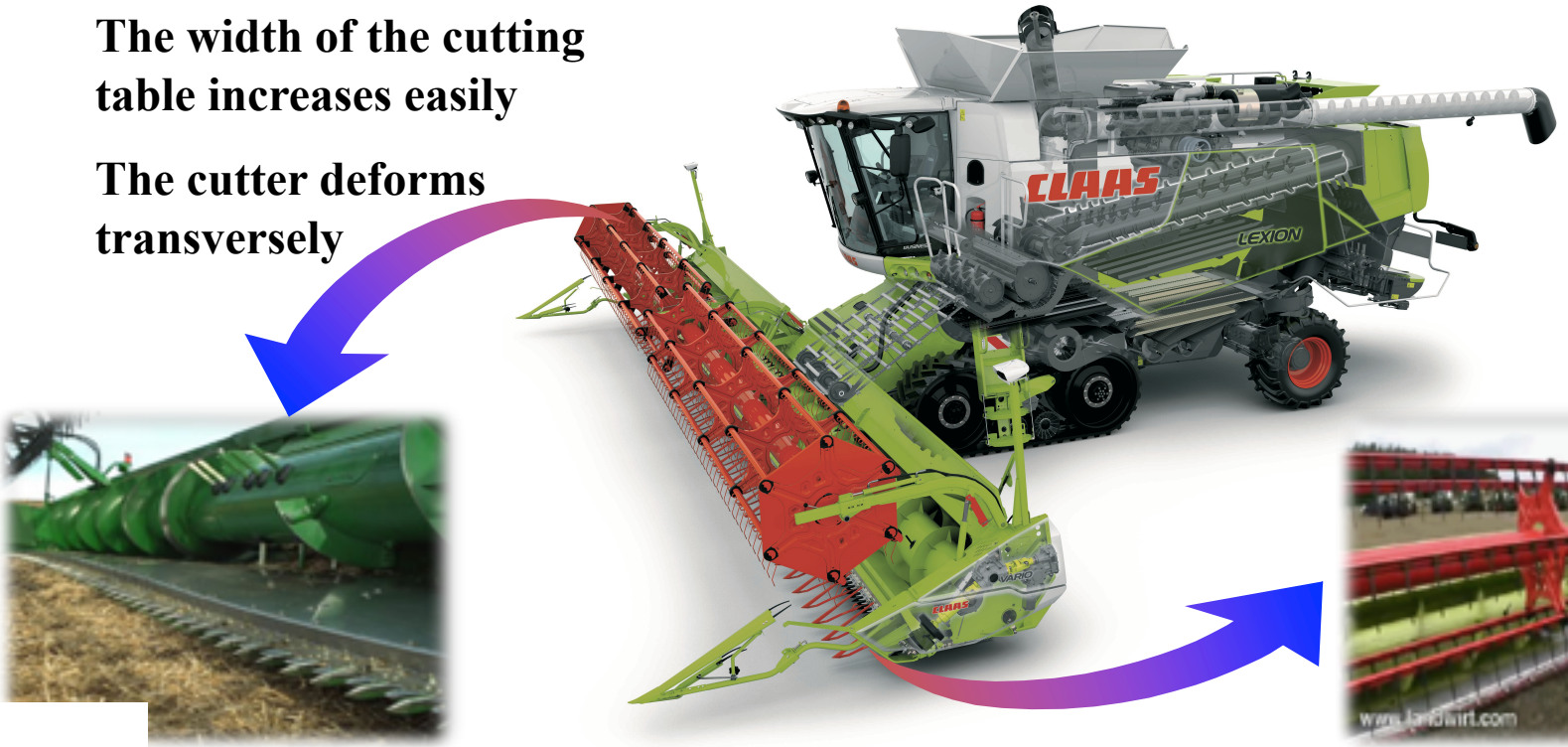
Folding wide width cutting table (8~15m)

3-3 Main technical characteristics of international advanced combine -- Width of operation and storage capacity

Flexible cutter, standard hydraulic drive interface

The width of the cutting table increases easily

The cutter deforms transversely

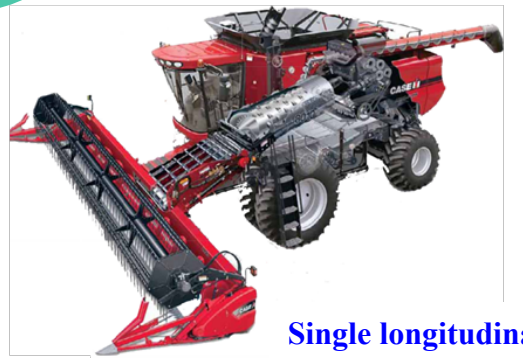


3-4 Main technical characteristics of international advanced combine threshing and separating performance

- Increase the diameter of the threshing drum
- Increase the mounting angle of the draft writer
- Increase threshing and separating distances
- Change threshing and separating methods
- Set the screen and lateral shake

In order to increase the threshing rate and separation rate of grain

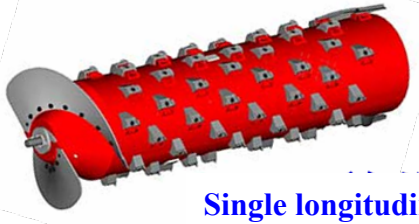
3-4 Main technical characteristics of international advanced combine threshing and separating performance



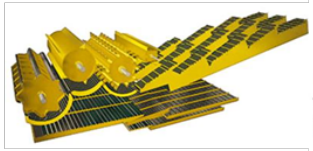
Single longitudinal

Longitudinal cutting

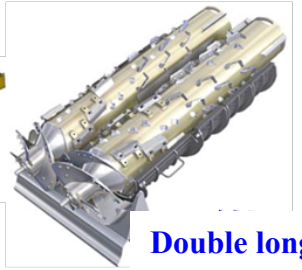
Single longitudinal



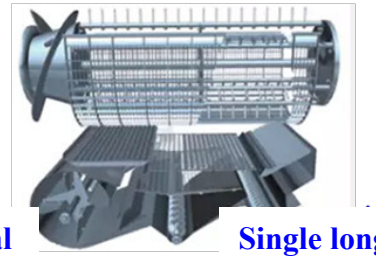
Single longitudinal



Tangential flow



Double longitudinal



Single longitudinal

- Single longitudinal flow drum
- Vortex fan
- Feed load control

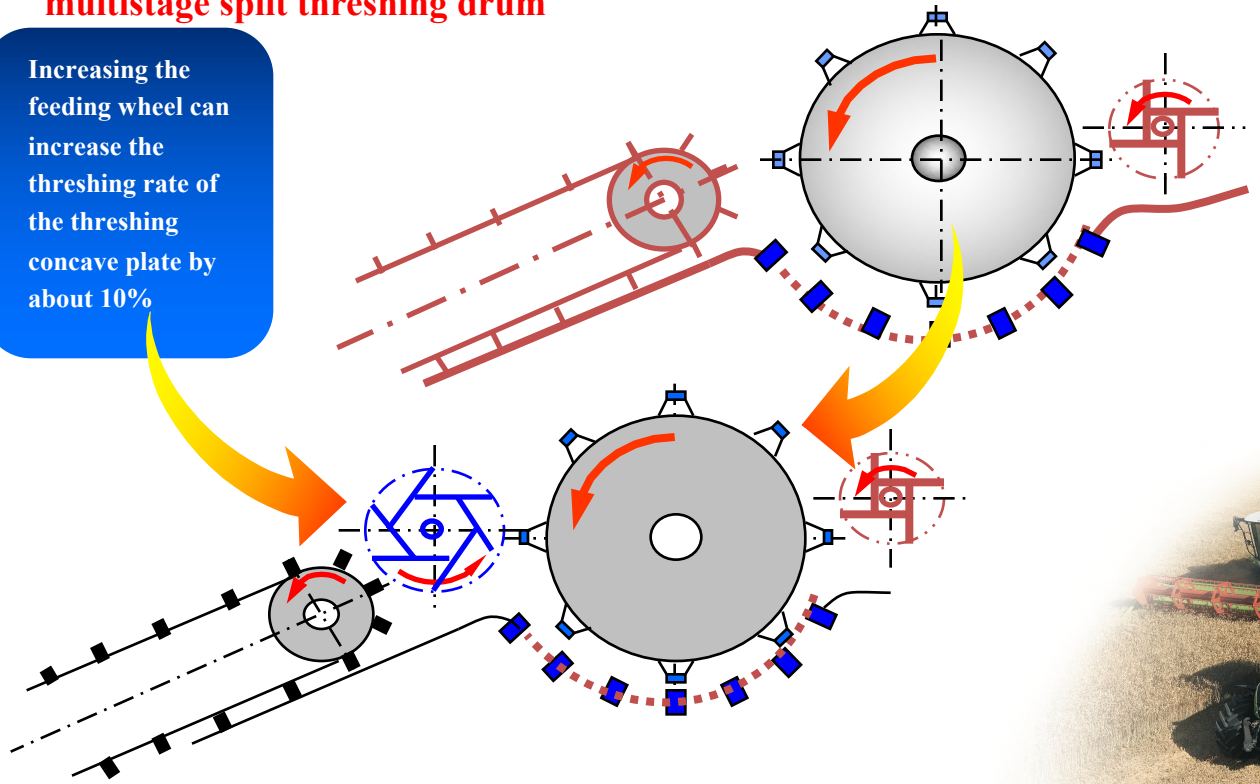
- Tangential flow and double longitudinal flow drum
- Clear from the balance device
- Opening of electronic controlled concave plate

- Single longitudinal flow drums (rice)
- Walking hydraulic step less speed regulation
- Anti blocking mechanism

3-3 Main technical characteristics of international advanced combine threshing and separating performance

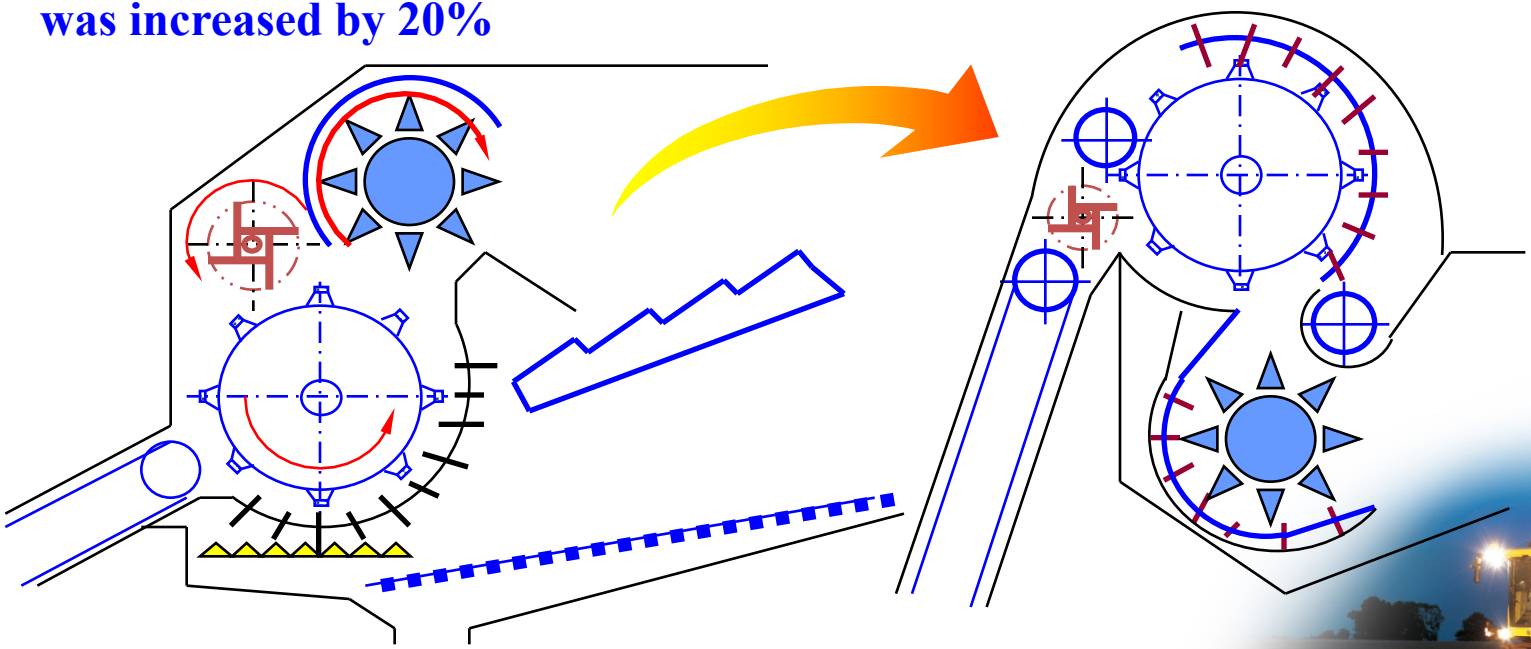
Evolution of single stage tangential threshing drum to multistage split threshing drum

Increasing the feeding wheel can increase the threshing rate of the threshing concave plate by about 10%



3-3 Main technical characteristics of international advanced combine threshing and separating performance

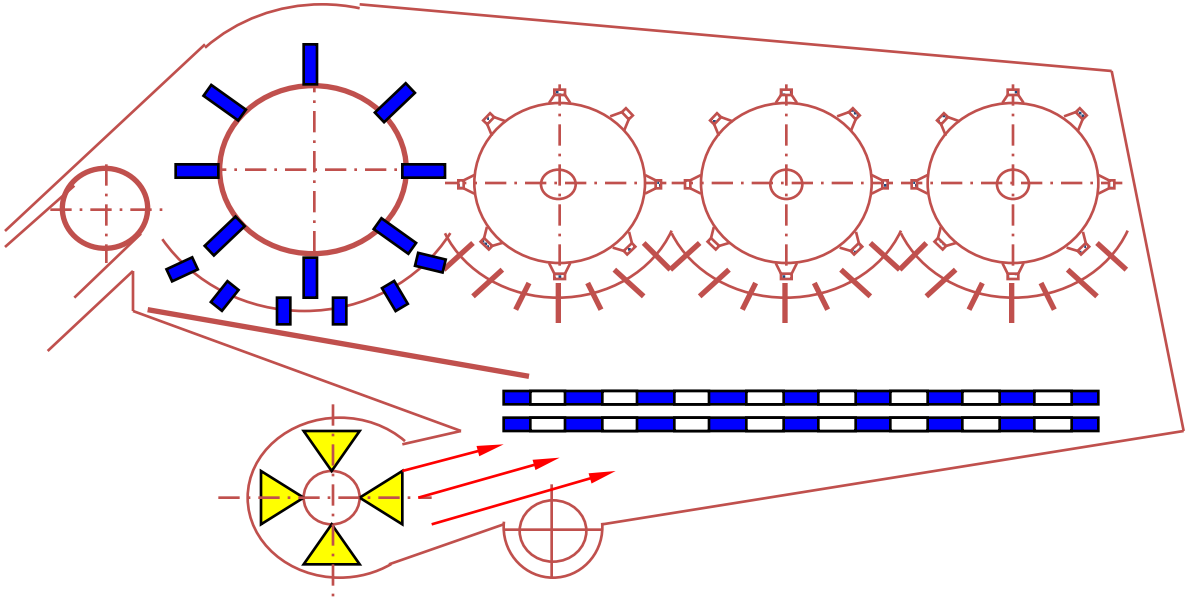
- The threshing rate of two stage cutting and threshing drum was increased by 20%



The breakage rate of stems increased

3-3 Main technical characteristics of international advanced combine threshing and separating performance

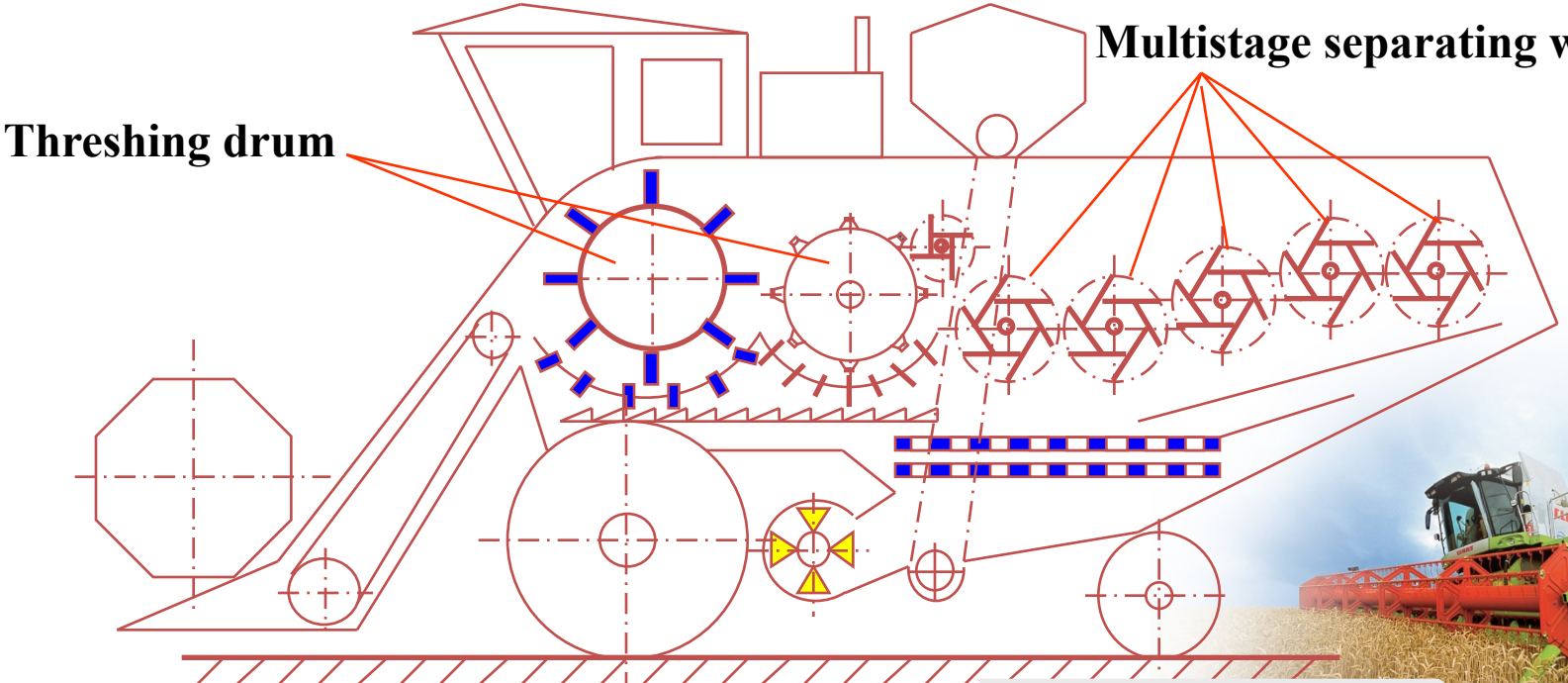
- Russian "Wake 3" test type double drum separating type combine harvester



Grain threshing rate increased by 25%, but due to increased stem crushing rate lead to reduced grain cleanliness

3-3 Main technical characteristics of international advanced combine threshing and separating performance

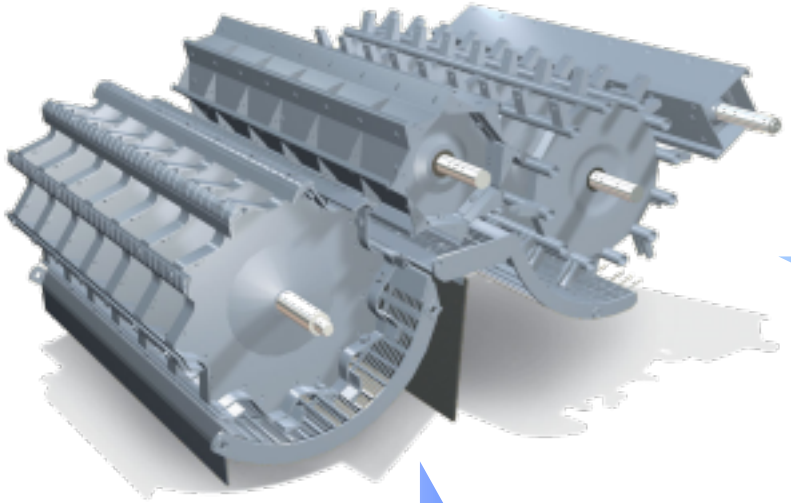
- Russian "Wake 3" test type double drum separating type combine harvester



Single stage threshing drum | Two stage threshing drum | Multistage threshing drum

3-3

Main technical characteristics of international advanced combine threshing and separating performance



Comparison of single stage drums with double stage roller

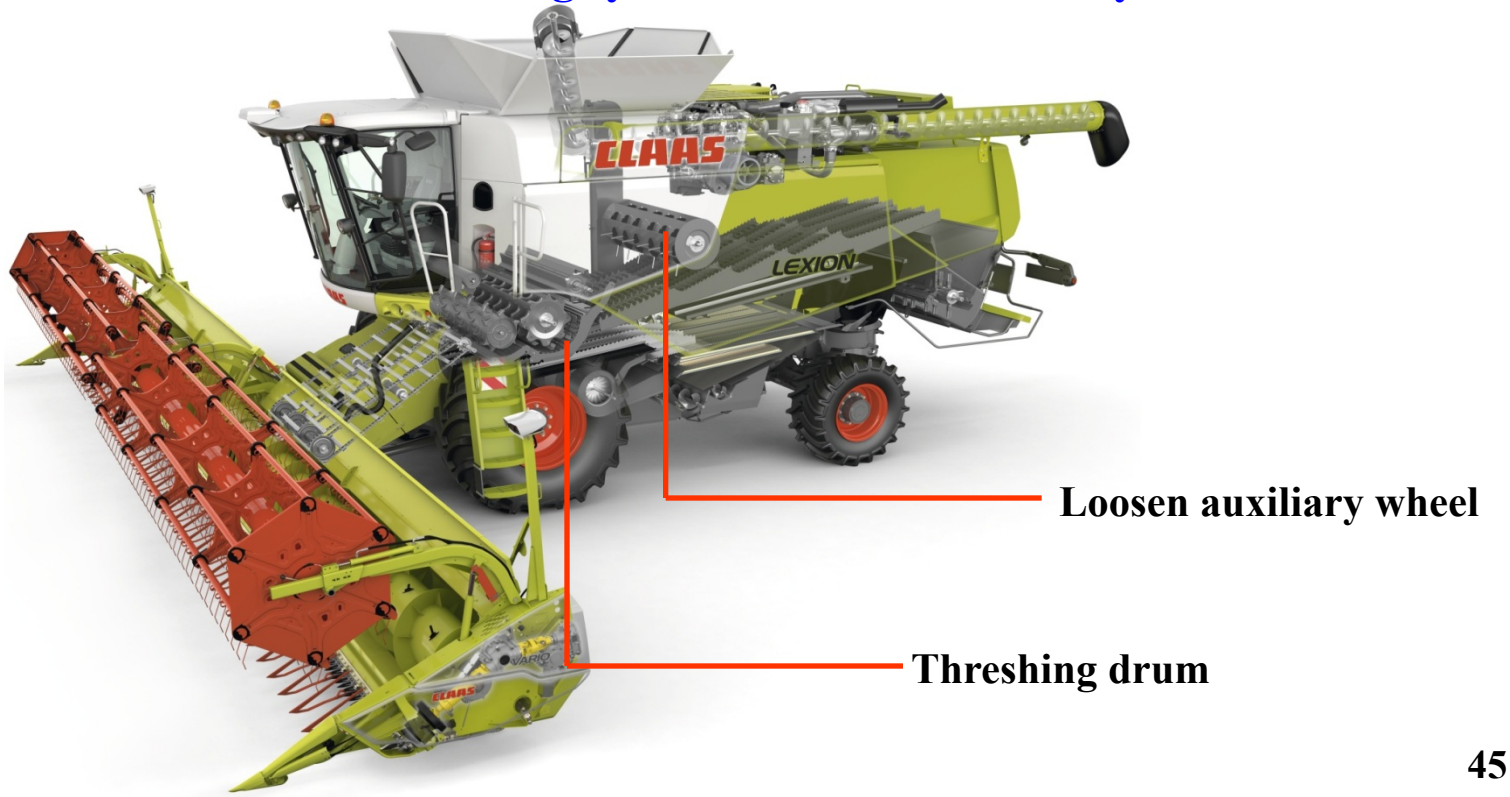
3-3 Main technical characteristics of international advanced combine threshing and separating performance

➢ New Holland and CR540 double cut drum threshing system

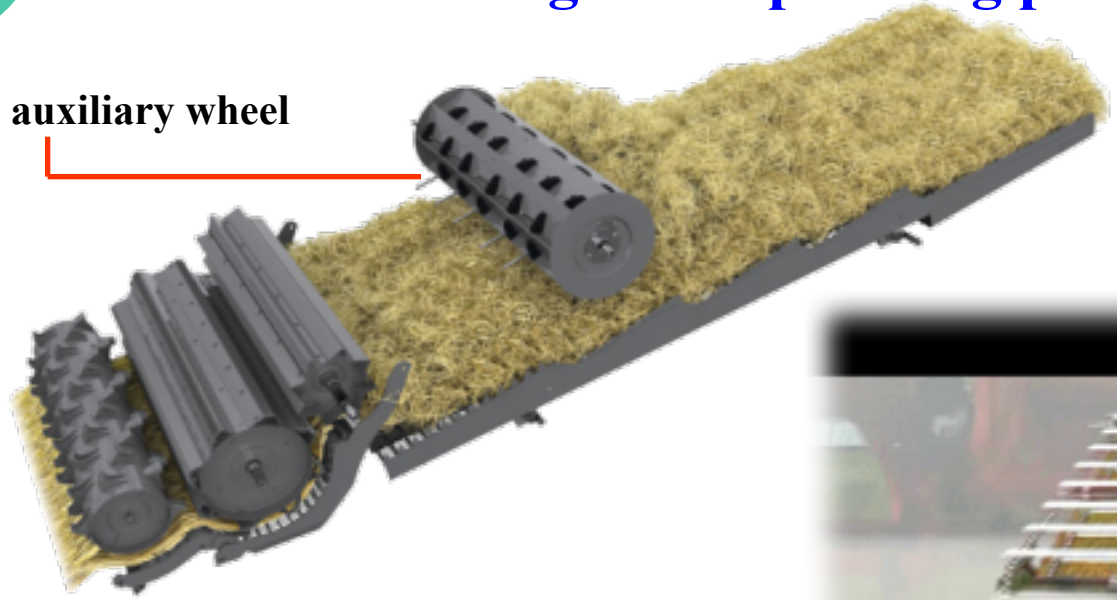
3-3

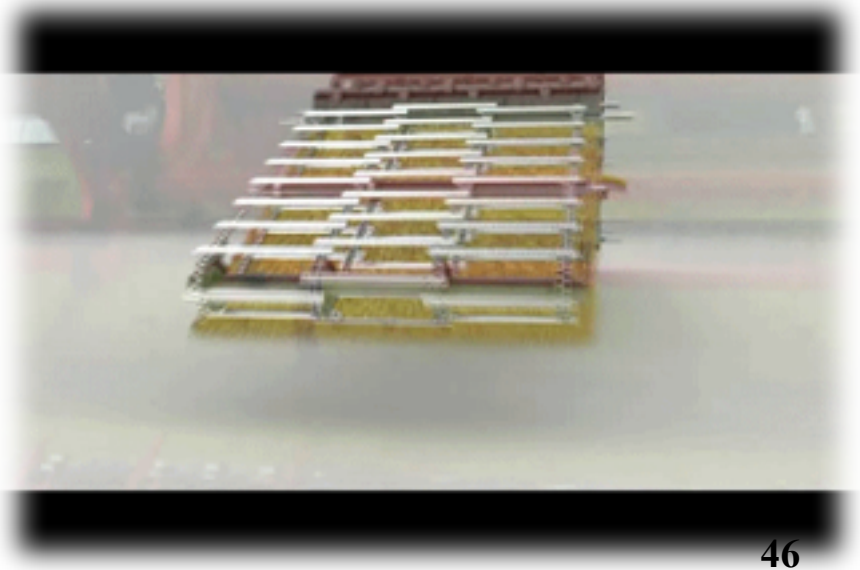
Main technical characteristics of international advanced combine threshing and separating performance

➢ CLAAS double cut threshing system with loose auxiliary wheel



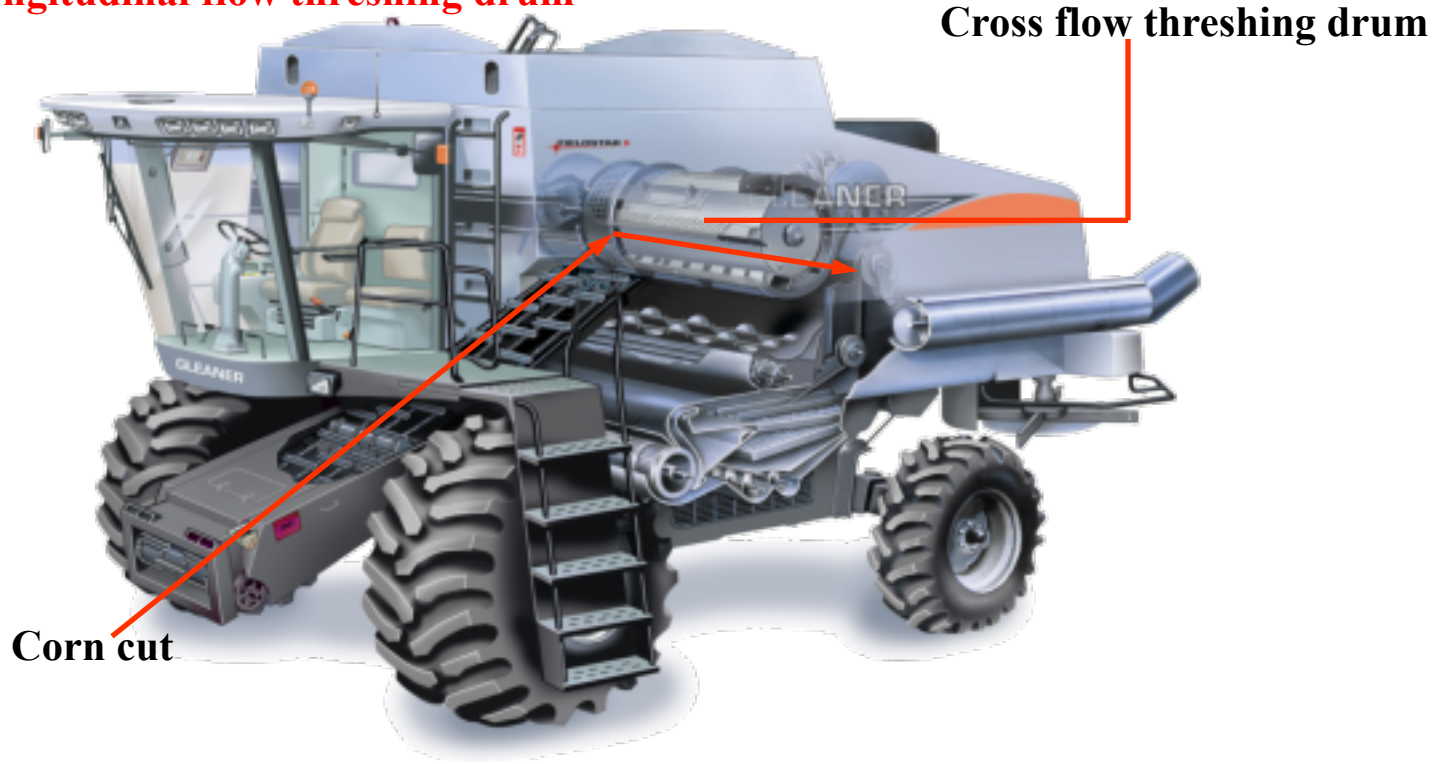
3-3 Main technical characteristics of international advanced combine threshing and separating performance





3-3 Main technical characteristics of international advanced combine threshing and separating performance

Evolution of single stage transverse flow threshing drum to single stage longitudinal flow threshing drum



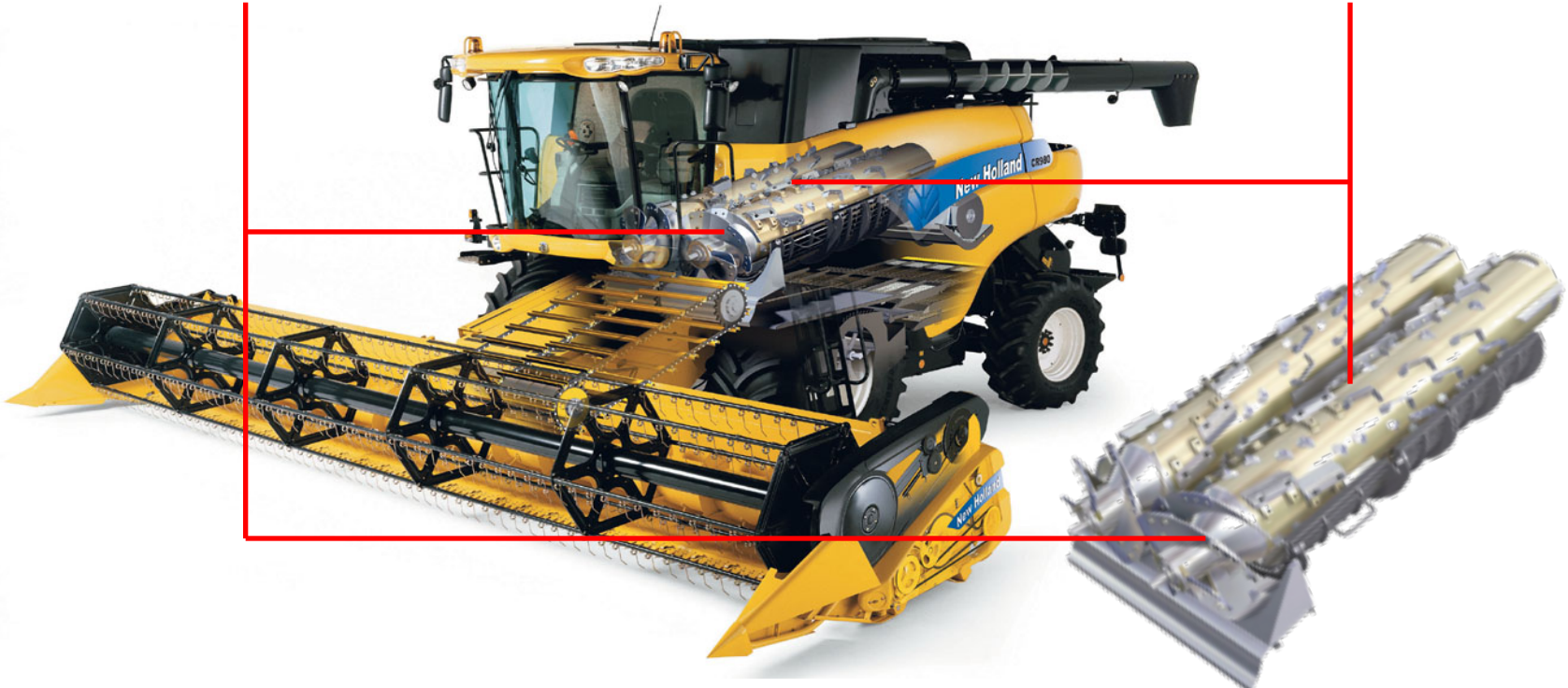
3-3 Main technical characteristics of international advanced combine threshing and separating performance

Evolution of longitudinal flow single stage threshing drum to vertical and horizontal mixing threshing drum

- **Single stage longitudinal flow roller with guide feeding blade - CASE-FAX8010**

3-3 Main technical characteristics of international advanced combine threshing and separating performance

➢ **Two stage longitudinal flow drum - New Holland CR980**



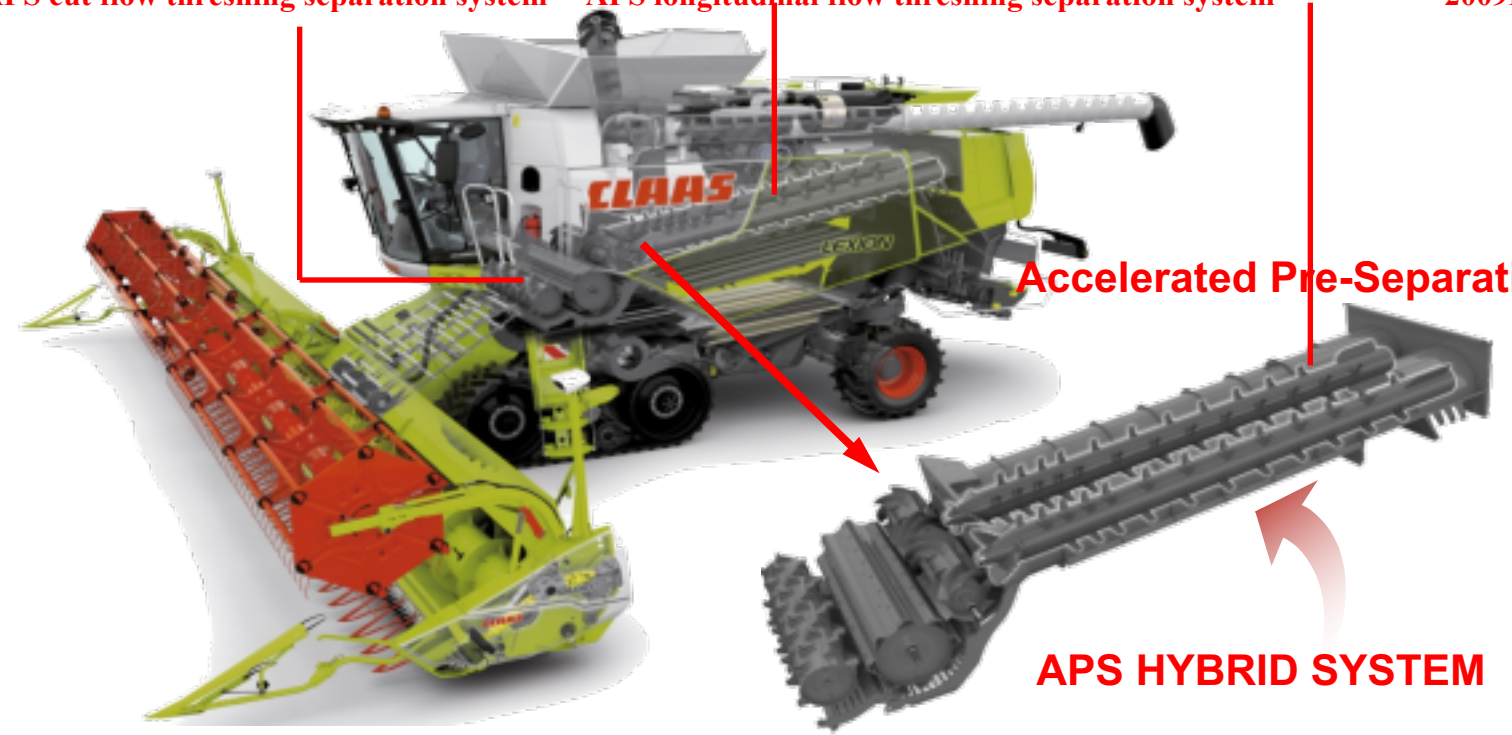
3-3 Main technical characteristics of international advanced combine threshing and separating performance

➢ **Multistage axial flow drum threshing system with cutting drum CLAAS-770**

APS cut flow threshing separation system

APS longitudinal flow threshing separation system

2009Edition



3-3 Main technical characteristics of international advanced combine threshing and separating performance

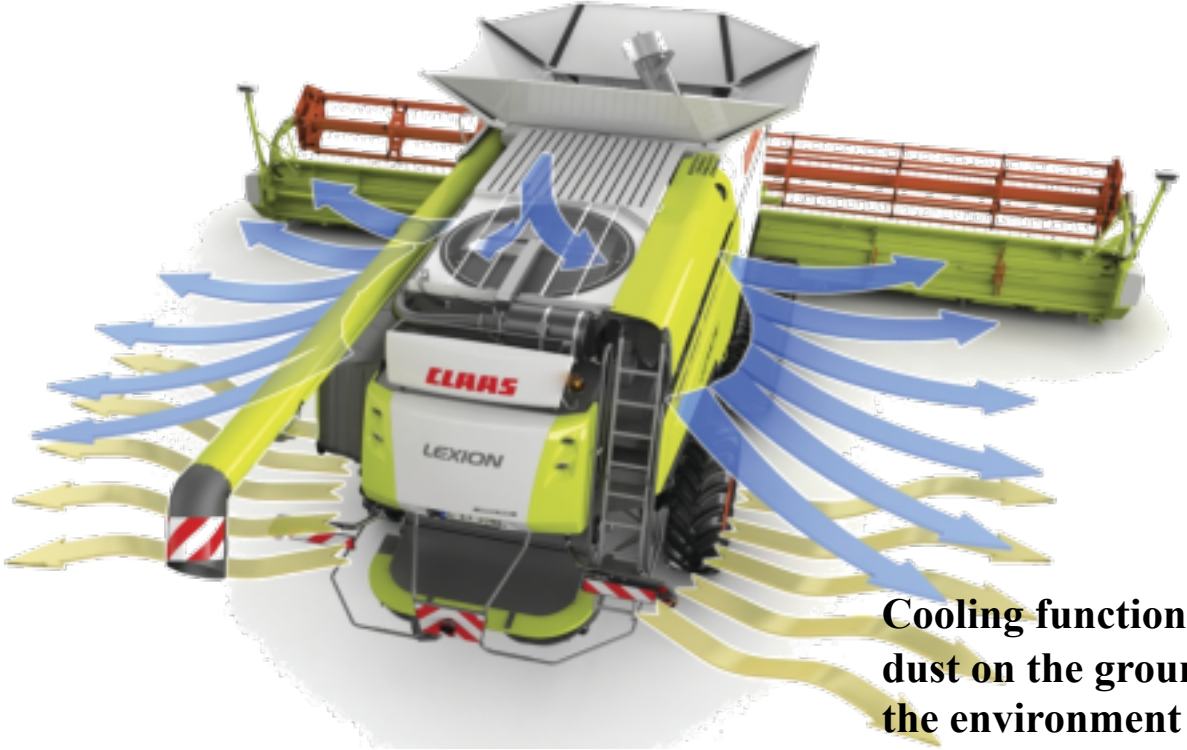
➢ **Multistage axial flow drum threshing system with cutting drum CLAAS-770**

2011 Edition

In the 2011 edition, the flow length of the blades of the double longitudinal flow threshing drum is increased, and the processing efficiency of the system is improved.

3-3 Main technical characteristics of international advanced combine threshing and separating performance

- CLAAS-770 with self suction flow cooling and cooling system

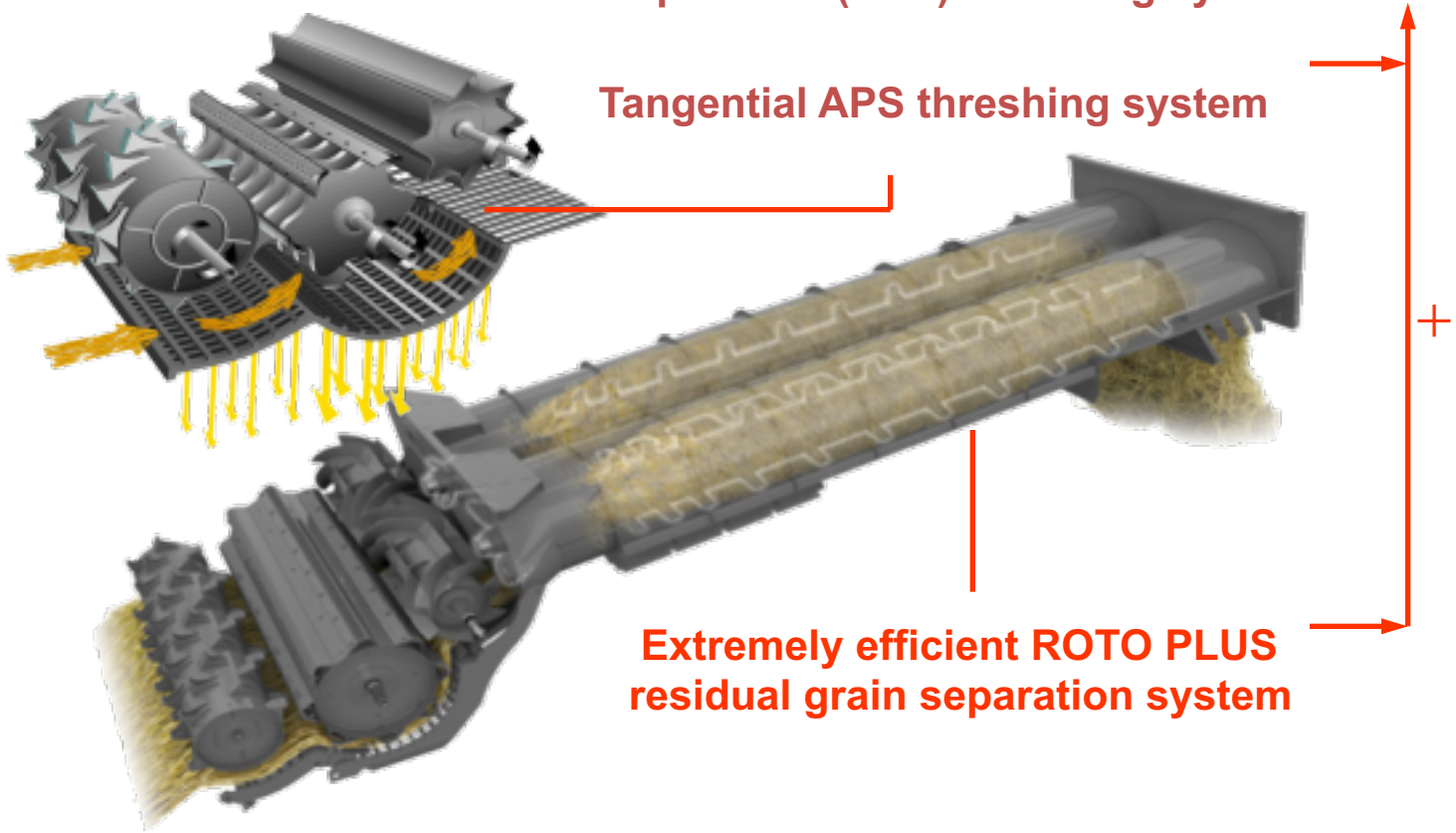


Cooling function to reduce the dust on the ground and pollute the environment

3-3

Main technical characteristics of international advanced combine threshing and separating performance

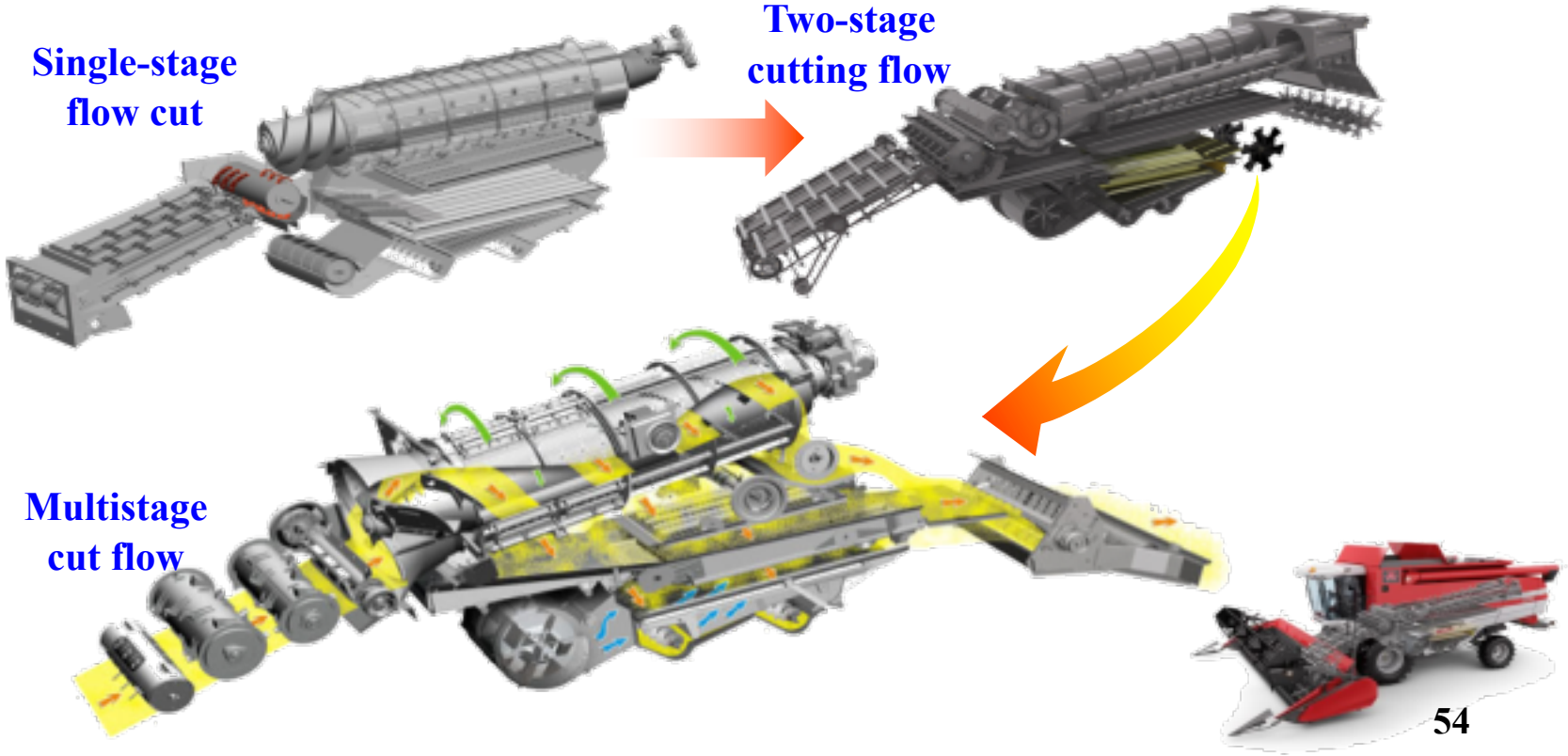
Accelerated Pre-Separation (APS) threshing system



3-3

Main technical characteristics of international advanced combine threshing and separating performance

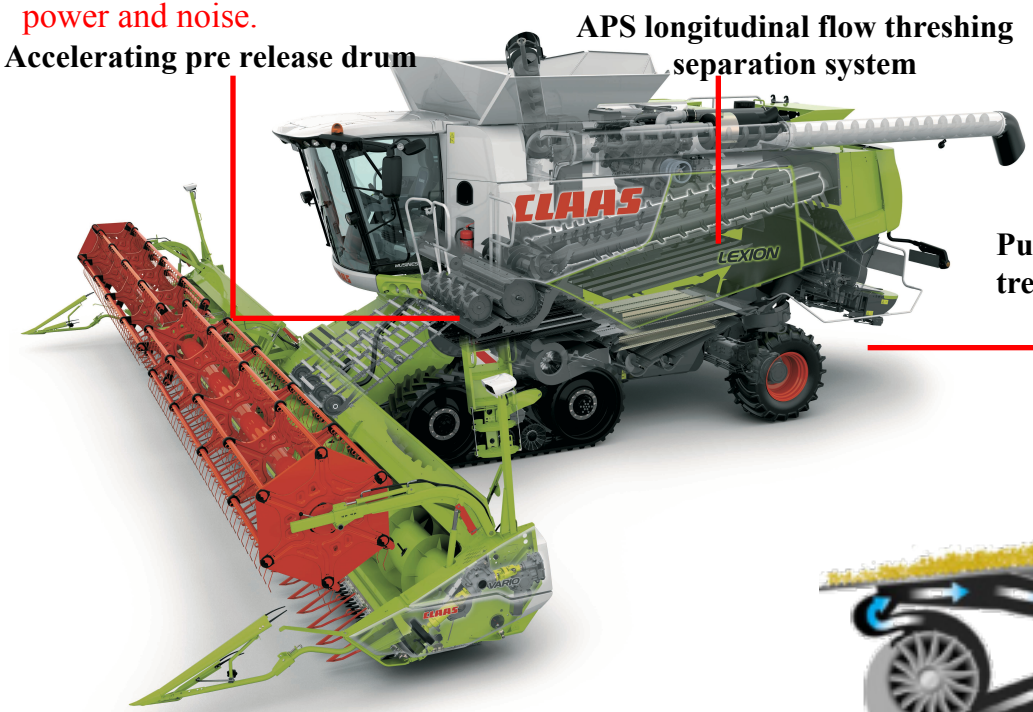
Evolution of threshing system of tangential longitudinal flow drum



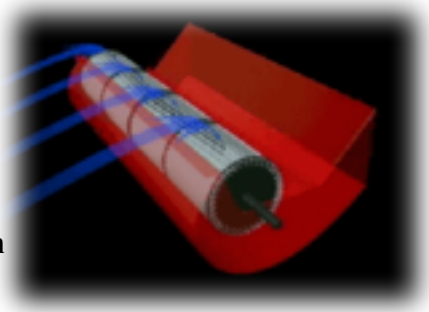
3-3 Main technical characteristics of international advanced combine threshing and separating performance

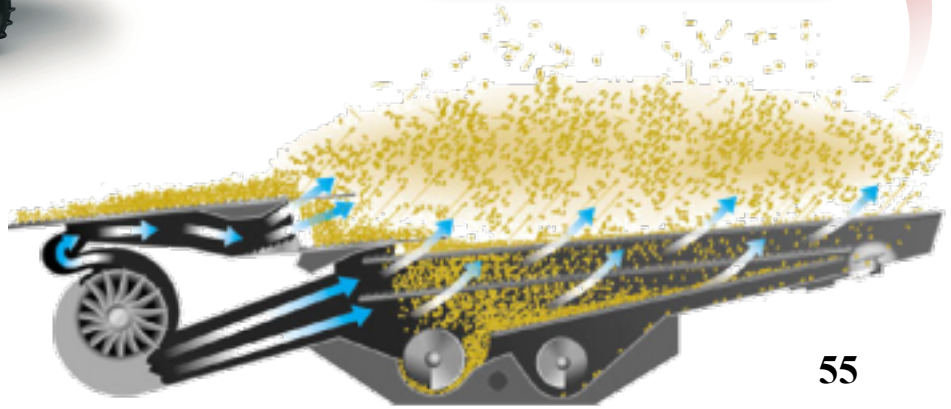
➢ **Grain cleaning system with an open cross flow fan - CLAAS-LEXION770**

- ensure the air cleaning sieve on a uniform, vortex is generated at the same time can effectively reduce the cleaning power and noise.



Pulsed straw treatment system





3-3 Main technical characteristics of international advanced combine threshing and separating performance

Pulsed straw treatment system

3-4 The main technical characteristics of the international advanced combine - -Adaptation to crop topography

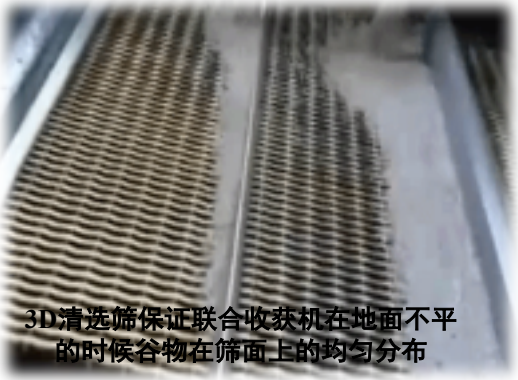
The ability to adapt to crop types and landforms

Case IH-AFX8010型谷物联合收获机

3-4 The main technical characteristics of the international advanced combine - -Adaptation to crop topography

- **The automatic leveling and cleaning system improves the operation ability of the unit to the topography and geomorphology**

JD系列坡地型



3D清选筛保证联合收获机在地面不平的时候谷物在筛面上的均匀分布

3-4 The main technical characteristics of the international advanced combine - -Adaptation to crop topography

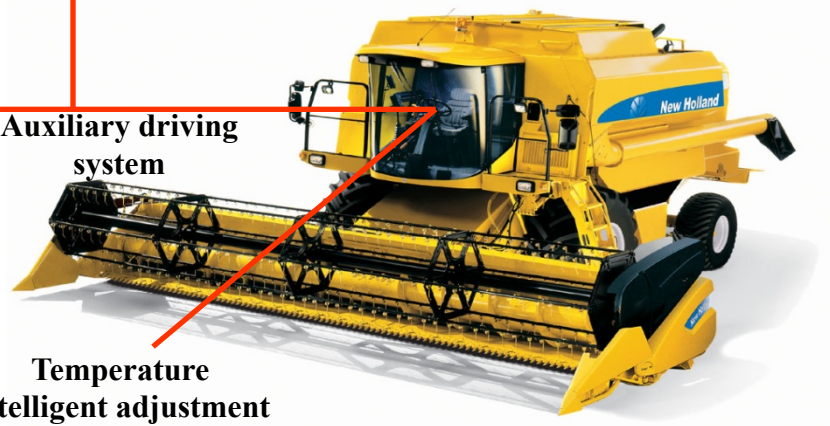
- The advanced lighting system prolongs the continuous operation time of the unit

3-5

The main technical characteristics of the international advanced combine harvester -- Driving comfort

Cab operating system with visualization and multifunction

Auxiliary driving system

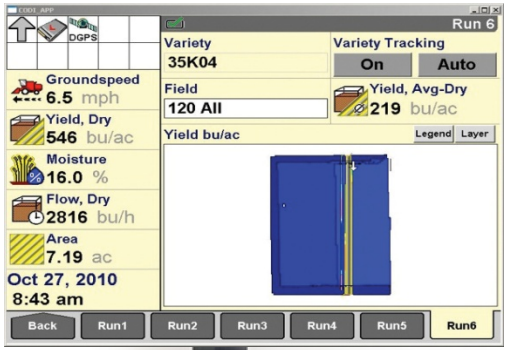


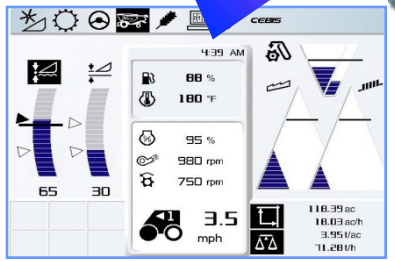
Temperature intelligent adjustment

3-5 The main technical characteristics of the international advanced combine harvester -- Driving comfort

A visual multi-function cab operating system

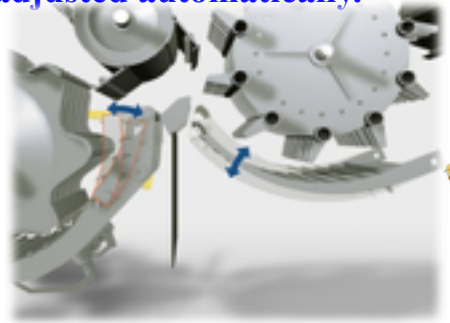
--Through the control handle, button, knob and LCD touch screen, various harvesting parameters of combine harvester are set and adjusted





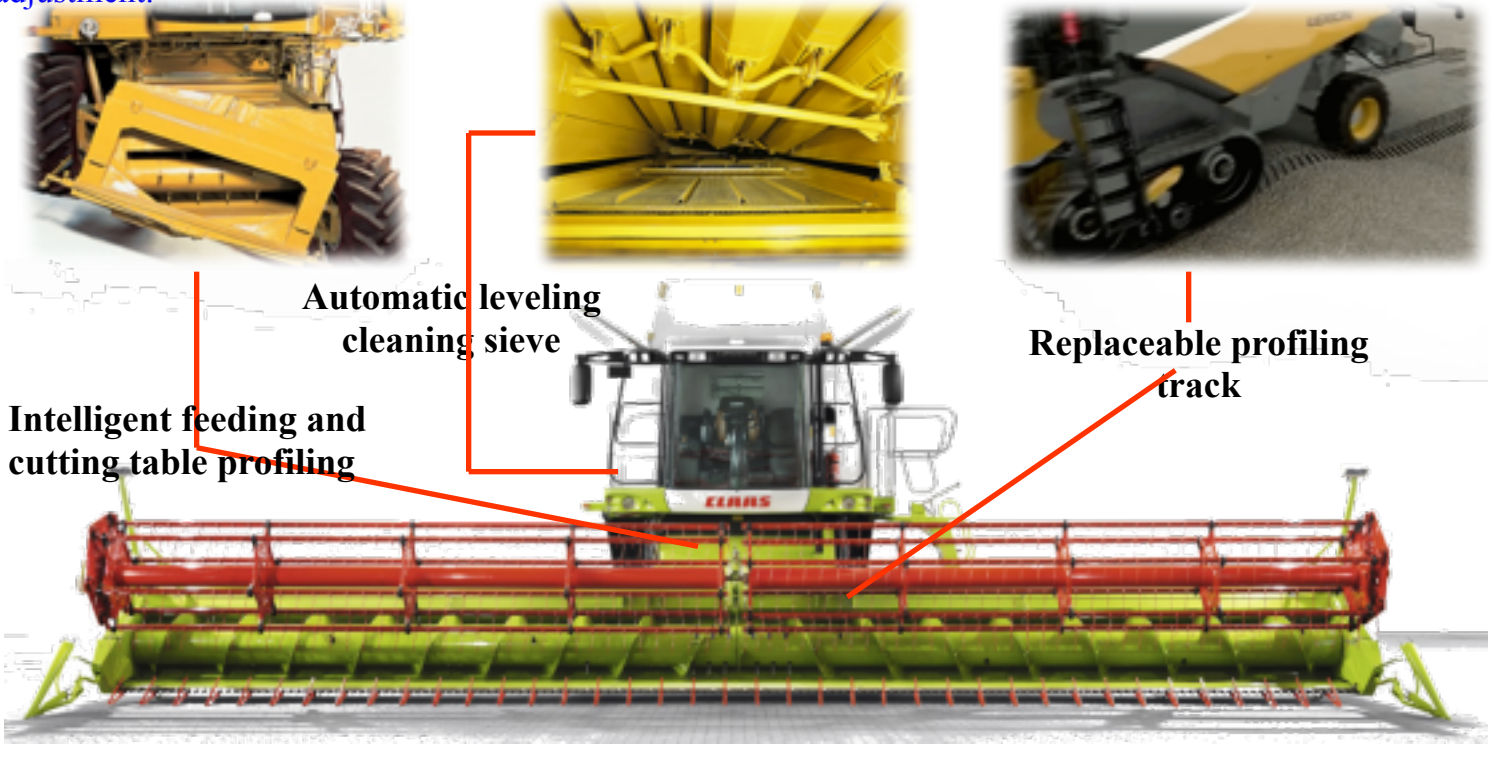
3-6 Main technical characteristics of international advanced combine -- Automation and intelligence

- **New Holland CR9000 feeding system uses two ultrasonic filters to detect feeding stones of different sizes to protect the threshing drum. When the feed volume is overloaded, the overload anti vomit device can be adjusted automatically.**



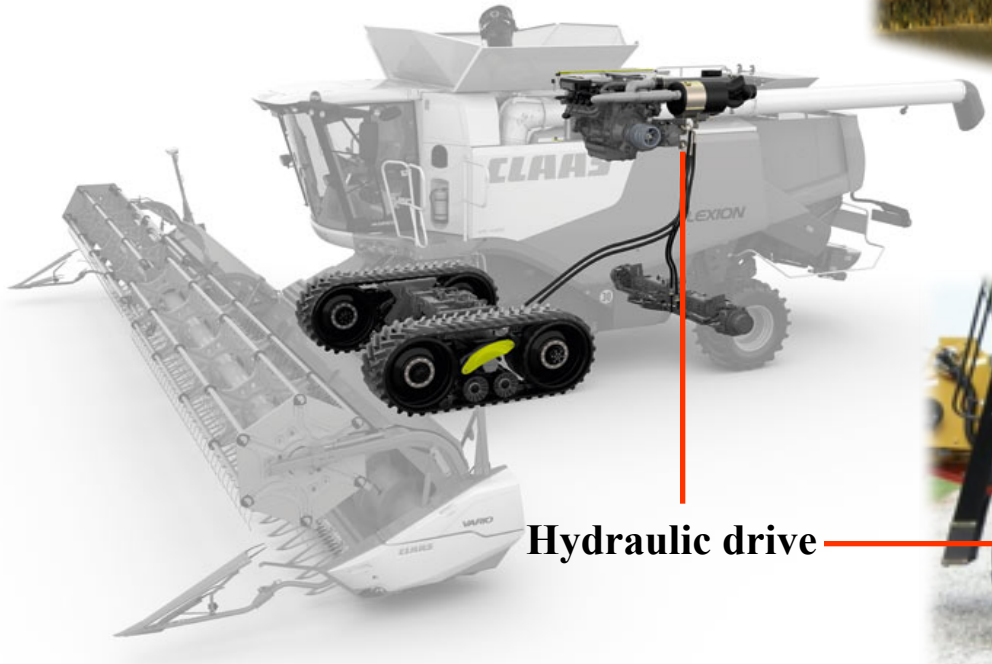
3-6 Main technical characteristics of international advanced combine -- Automation and intelligence

- 德国克拉斯公司 Class LEXION harvester cutting table is equipped with flexible dust adsorption device, ensuring the operator clear vision, height and direction of the automatic control of the header, can be arbitrary in - 4.5 degree range adjustment.



3-6 Main technical characteristics of international advanced combine -- Automation and intelligence

Intelligent profiling walking system



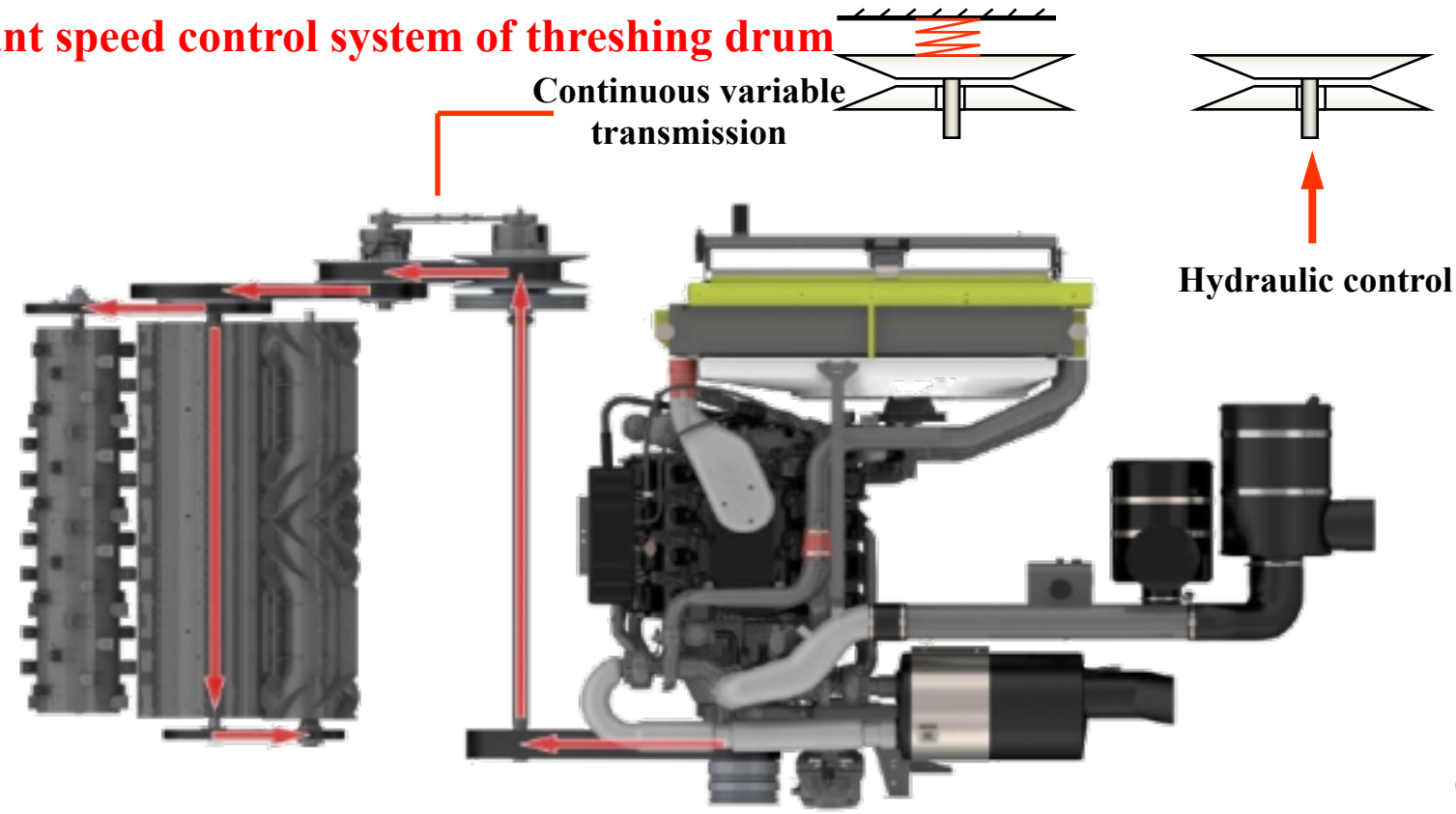
Hydraulic drive

3-6 Main technical characteristics of international advanced combine -- Automation and intelligence

- **Case IH 8010** cutting table and feeding device can be adjusted automatically according to the running speed of the combine harvester to achieve the best feeding effect. A lot of smart adjustments and control systems are used, such as auxiliary steering system, automatic driving system, threshing drum constant speed control system and operation speed automatic control system.

3-6 Main technical characteristics of international advanced combine -- Automation and intelligence

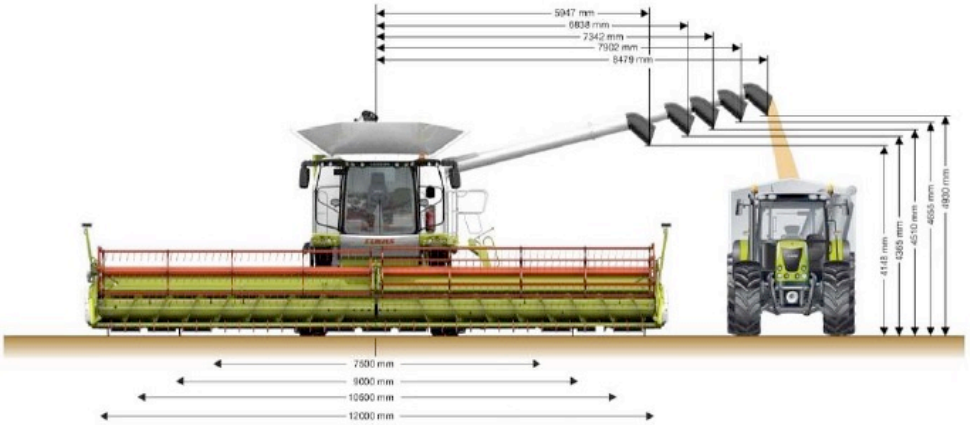
Constant speed control system of threshing drum



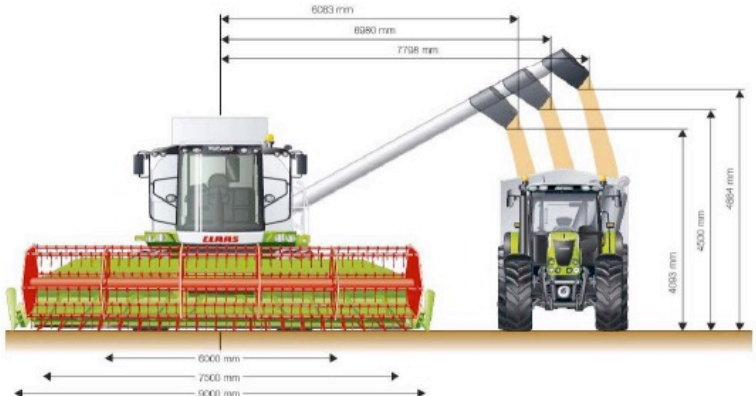
3-6 Main technical characteristics of international advanced combine -- Automation and intelligence

The grain can be adjusted and monitored in real time

LEXION

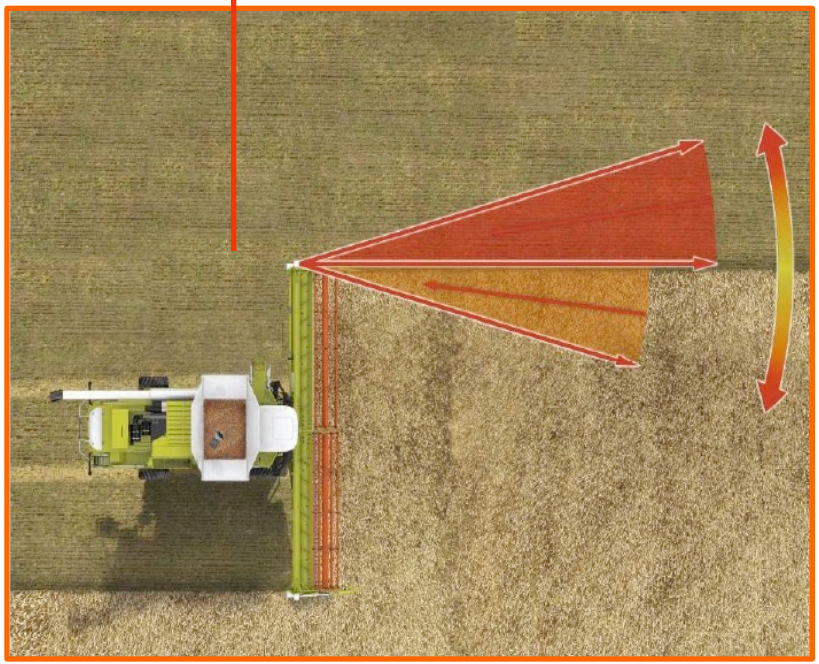


TUCANO
AVERO
DOMINATOR



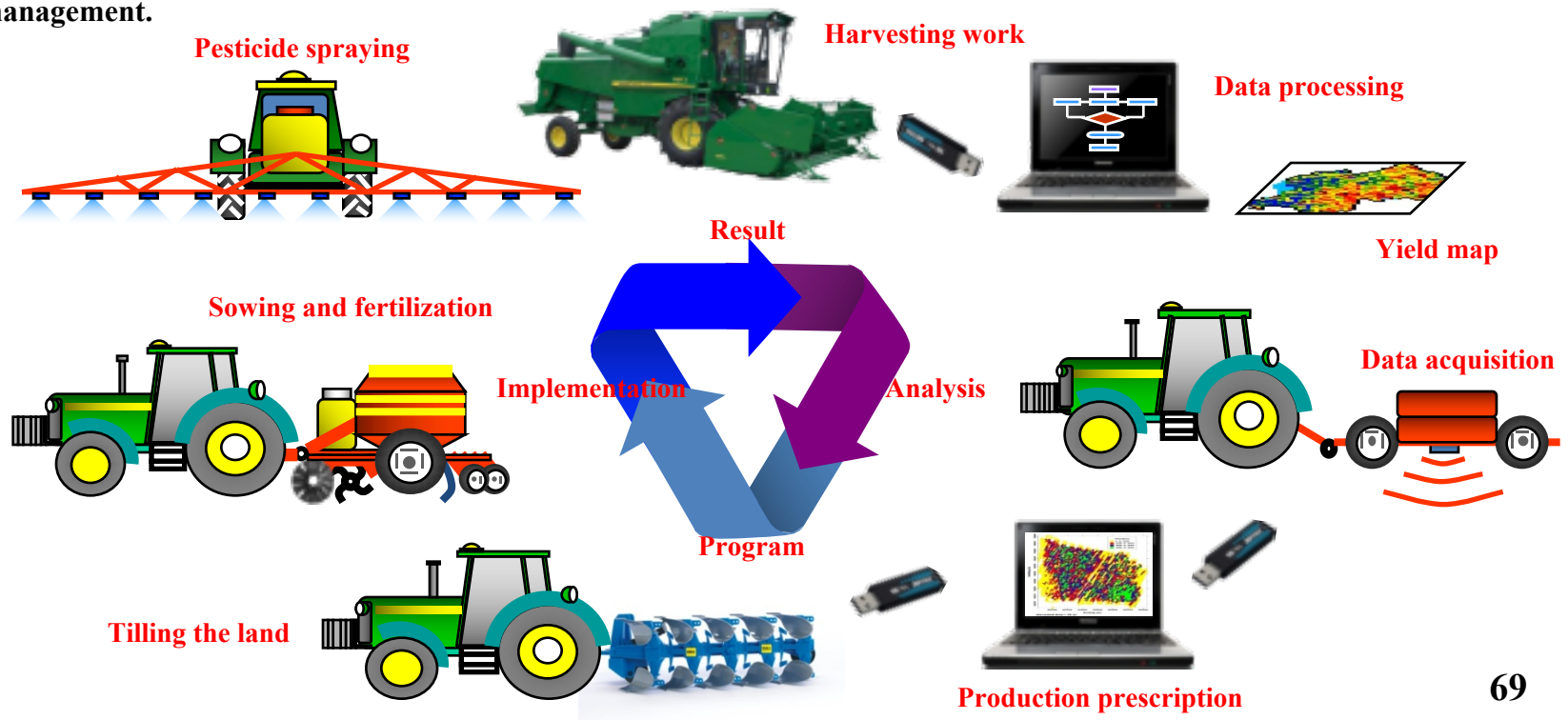
3-6 Main technical characteristics of international advanced combine -- Automation and intelligence

The laser navigation system ensures that the combine harvester is not dipped from day to night



3-6 Main technical characteristics of international advanced combine -- Automation and intelligence

- Foreign combine harvester has been developed to a fully automated, intelligent direction, most harvesters have been using electronic sensors to harvest grain quality on-line monitoring, and combined with the GPS support system for harvesting management.



3-6 Main technical characteristics of international advanced combine -- Automation and intelligence

Field positioning system of combine harvester

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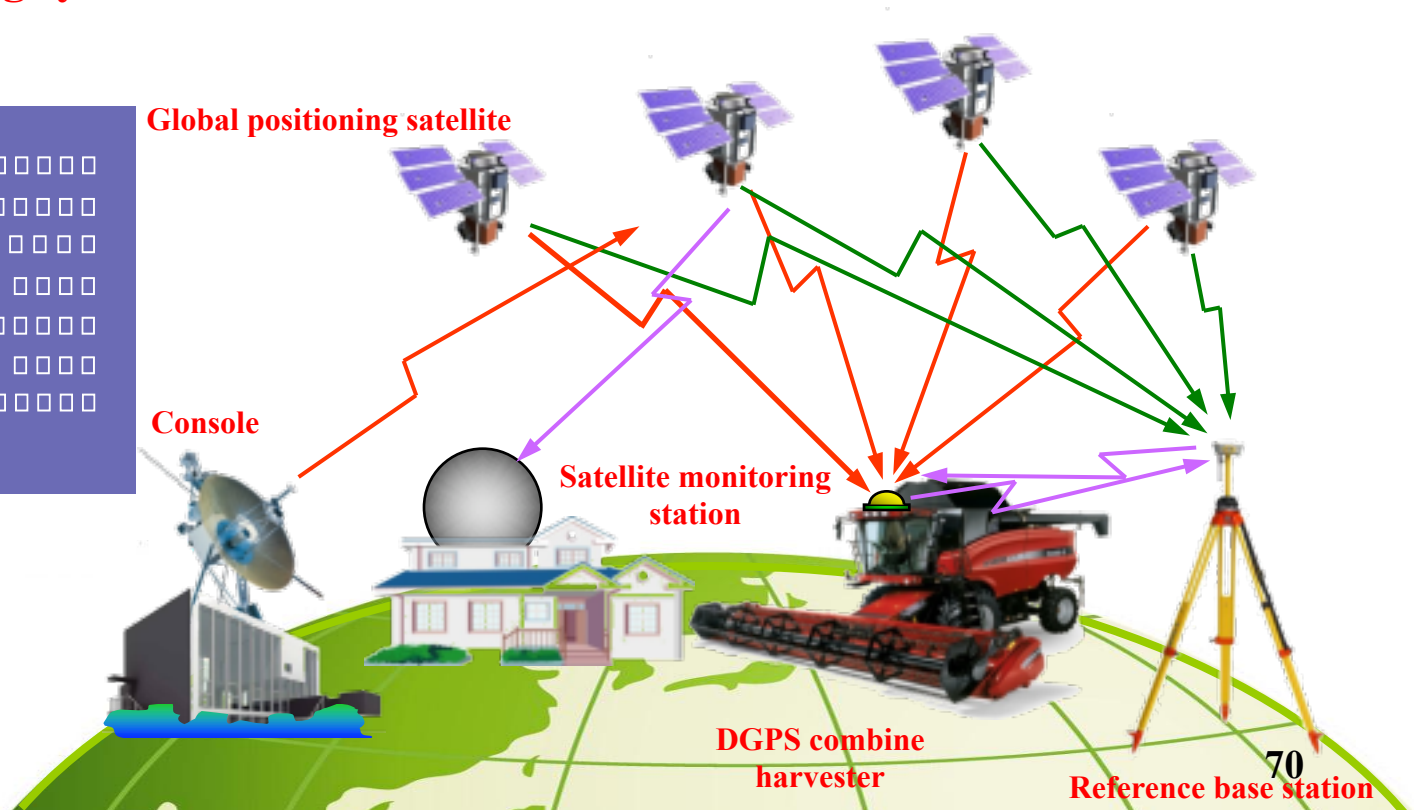
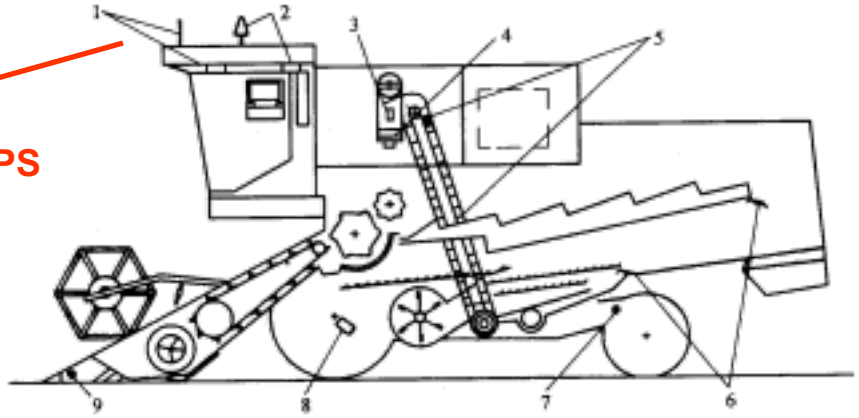


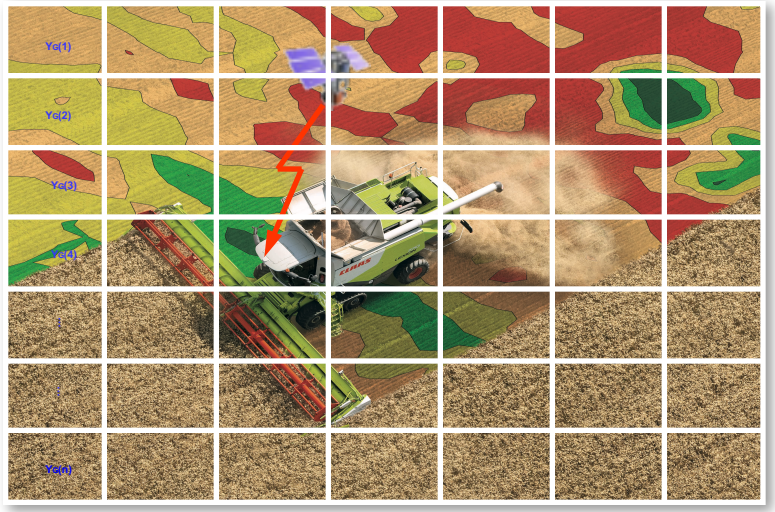
3-6 Main technical characteristics of international advanced combine -- Automation and intelligence

Basic structure of yield map generation system



谷物联合收割机测产系统传感器

1. DGPS 接收装置 2. GPS 接收装置 3. 谷物湿度测量 4. 谷物密度测量
5. 谷物体积流量测量 6. 谷物损失测量 7. 转向角度测量 8. 距离/速度测量 9. 割幅测量

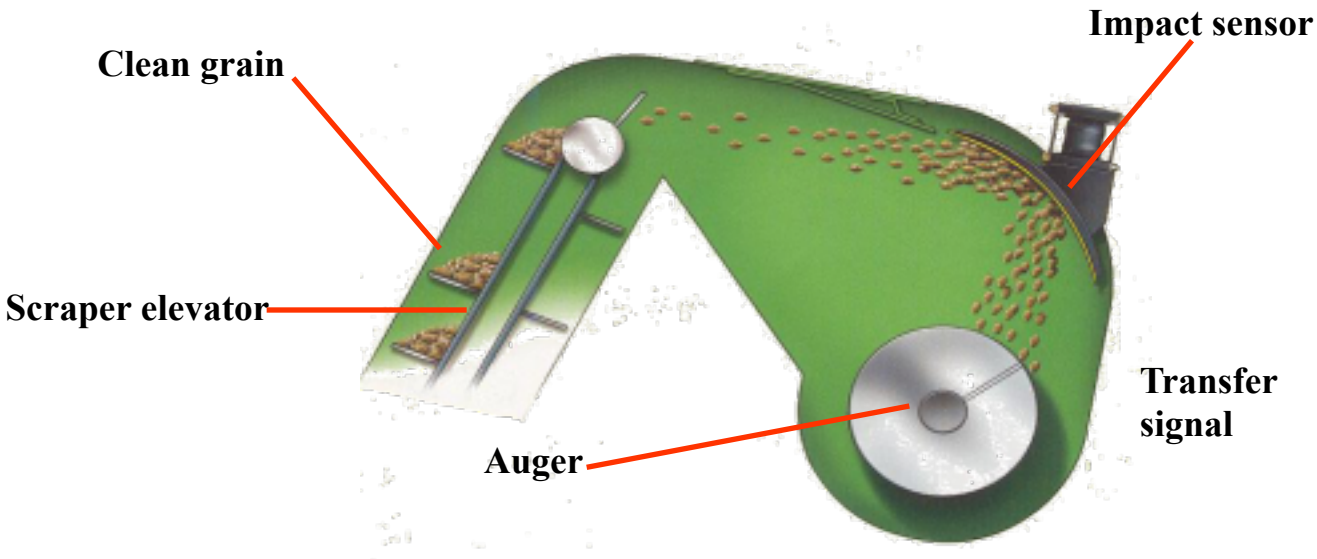


In order to draw a production distribution map, the harvester must install a GPS receiver, a production tester, grain moisture sensor, unit speed sensor and etc.

3-6 Main technical characteristics of international advanced combine -- Automation and intelligence

Grain flow detecting device

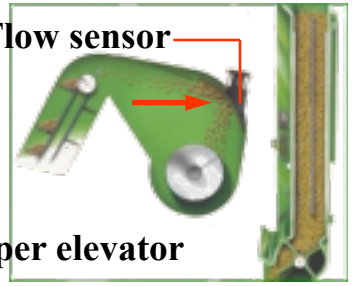
The measuring device is usually composed of a grain lifter, a signal generator, a signal receiver and so on. During operation, the stable signal transmitted by the signal generator passes through the flow grain layer and reaches the signal receiver, and the strength of the received signal through the size of the valley, so the strength of the received signal also reflects the size of the transient output and its fluctuations.



3-6 Main technical characteristics of international advanced combine -- Automation and intelligence

Digital yield distribution map

Flow sensor

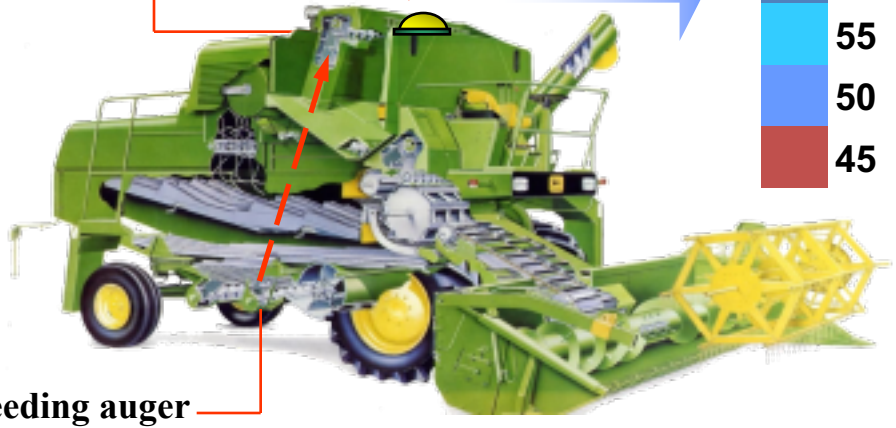


Scraper elevator

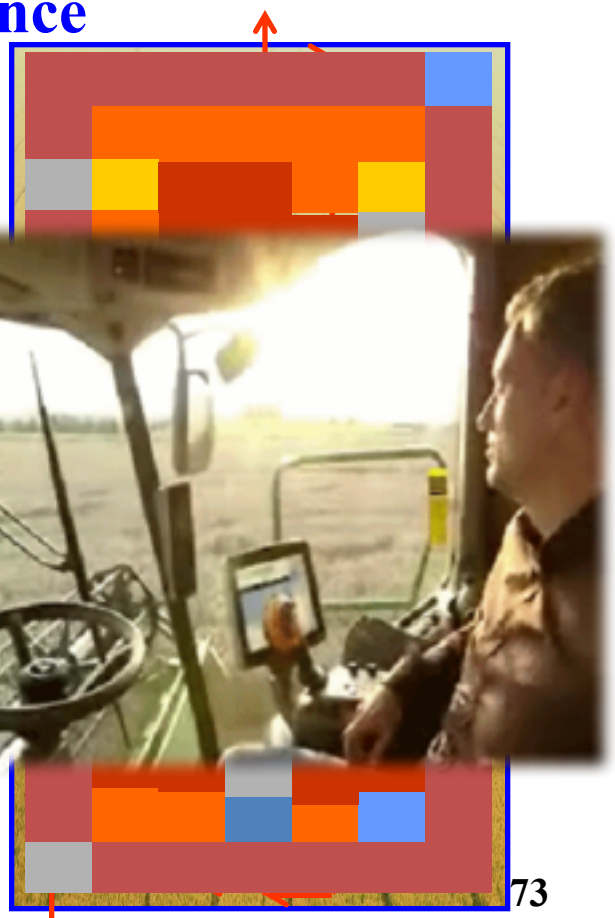
Digital production map calibration

t / hm²

80
75
70
65
60
55
50
45

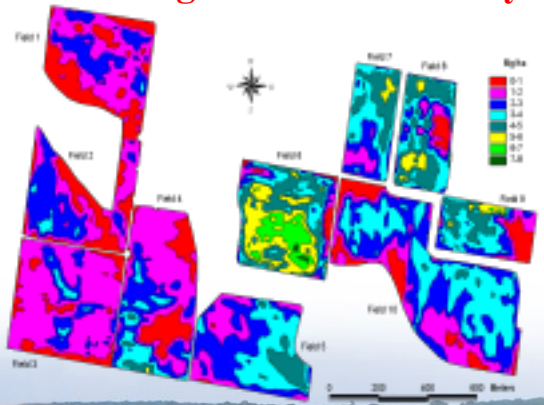


Grain feeding auger



3-6 Main technical characteristics of international advanced combine -- Automation and intelligence

Differential diagnosis of farmland yield



- **Weeds and pests?**
- **Irrigation intensity is uneven?**
- **Herbicide spray is not timely?**
- **Tractor wheel compaction?**
- **Sowing and fertilization problems?**
- **In the soil NPK content distribution is not reasonable?**

3-7 Development trend of international advanced combine harvester

High power, high efficiency

Low loss, high cleaning

Informationization

High comfort, humane

Excellent performance, good quality

4

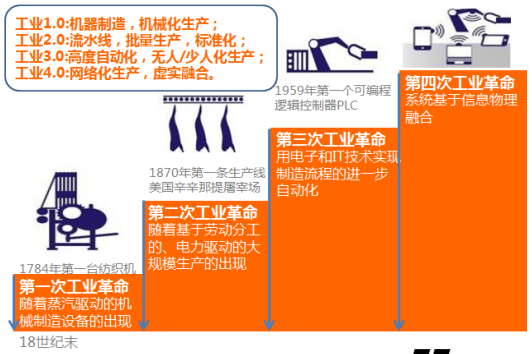
THINKING OF RICE MECHANIZATION HARVESTING IN CHINA

4-1 Thinking of rice mechanization harvesting in China

The future "golden ten years", the urgent need to solve the problem

"13th Five-Year," Chinese grain crops harvesting machinery will usher in "ten years" period of development, especially the "high efficiency, low loss, smart, information harvesting machinery will be greatly developed.

- **Large scale of agricultural machinery and slow down of cultivated land intensification --Large scale**
- **The weakness of basic R & D and product homogeneity --Diversification**
- **Poor intelligence and efficient operation of equipment -- Intelligent**
- **Low level of agricultural machinery service and service Informationization -- Informationization**



4-2 Development trend of rice harvesting machinery

Development trend of rice harvesting machinery

克拉斯、迪尔凯斯公司产品代表当前国际先进水平

中国产品当前水平

Animal machinery

Mechanization

Electromechanical fluid integration

Intellectualization

Intelligent informatization

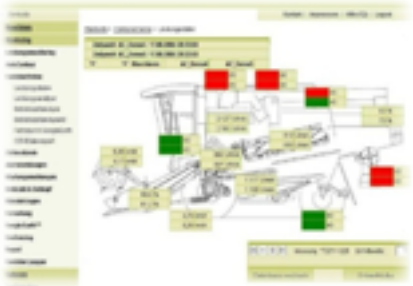
Reduce labor intensity

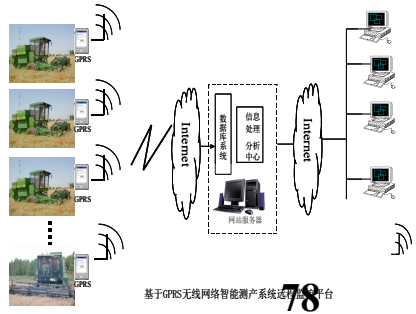
Less manual labor

Automatic reliability

High efficiency and low loss receiving

Operation management of high efficiency and low loss receiving





4-3

Development trend of rice harvesting

Development trend of rice harvesting

High efficiency receiving and low loss operation	➢ Rice, wheat: large feeding volume, wide cut width, high efficiency and low loss receiving mode ➢ Rice: large feeding quantity, light weight and high pass of paddy field
Intelligence and informatization	➢ Intelligent system to achieve precise control of job parameters ➢ Online monitoring, remote operation and maintenance management and fault diagnosis ➢ Intelligent and information aided driving
Reliability and comfort	➢ 专业化、自动化、智能化生产 ➢ 机电液融合，提高可靠性 ➢ 人机交互，减振降噪


谢　谢！