How to Produce High-Quality Crop Products from Field to Bowl? @Rice as an Example

如何生产优质的农作物产品—从源头到餐桌

—以水稻为例

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稻米生产过程
Rice Production Process

稻种
seed

幼苗
seedling

分蘖
tillering

灌浆
grain filling

收获
harvesting

仓储
storage

加工
processing

包装
packaging

蒸煮
cooking

水稻种植方式多样

Diversified Rice Planting Methods

- **Sowing time:** Determination according to the local temperature and light conditions, cultivation methods and systems

Direct seeding

Machine transplanting

Manual transplanting

Manual seeding

水稻主要病虫害

Major Rice Pests and Diseases

稻瘟病

Rice Blast

纹枯病

Sheath Blight Disease

稻曲病

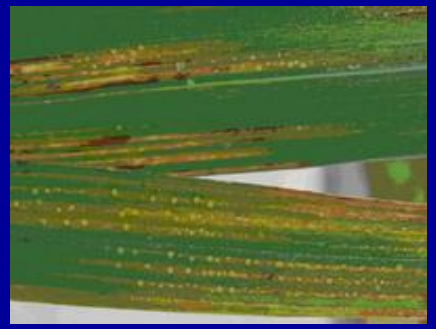
Rice False Smut

恶苗病

Bakanae Disease

干尖线虫病

Stem Tip Nematode Disease



细菌性条斑病

Bacterial Leaf Streak

纵卷叶螟

Rice Leaf Roller

稻飞虱

Plant Hopper

稻米生产受多个因素制约

Restraining Factors of Rice Production

好品种是好大米生产的基础，能否生产出好大米还有其它制约因素。

While good varieties are the foundation for quality rice production, there are other restraining factors for the production of good rice.

产地环境：土壤（土壤的类型、结构、酸碱性）、气候（品种熟期、适应性）、水质（等级）

Production Environment: soil (type, structure, pH value), climate (maturity period of varieties, adaptabilities), water quality (levels)

栽培条件：播期、密度、施肥量与施肥时期、肥料种类、水浆管理、病虫害控制等

Cultivation conditions: sowing time, density, fertilizer application and time, types of fertilizers, water and starch management, pest and disease control, etc.

产后管理：收获、烘干、加工、包装、储藏等

Post-harvest management: harvesting, drying, processing, packaging and storage.

我国现行的稻米质量标准体系
Current Rice Quality Standard Systems in China

我国现行的稻米质量标准体系包括《稻谷》（GB 1350—2009）、《优质稻谷》（GB/T 17891-2017）、《大米》（GB 1354—2018）等，对稻谷、大米的术语和定义、分类、质量要求和食品安全要求、检验方法、检验规则、标签、标识以及包装、储存和运输要求进行了详细全面的定义，以及相关的配套检验方法。

目前现行的国家或行业稻米产业相关标准有150项。

The current rice quality standard systems in China include Unhusked Rice (GB 1350—2009), Quality Unhusked Rice (GB/T 17891-2017), Milled Rice (GB 1354—2018), etc., which define in great detail the proper terms, classification, quality requirements, safety requirements, testing methods and rules, tagging, labelling, packaging, storing and transportation requirements, and the supporting testing methods as well.

All together over 150 related national or industrial standards for rice are currently in effect.


ICS 67.060
B 22

中华人民共和国国家标准

GB/T 1354—2018
代替 GB/T 1354—2009

大　　米

Milled rice


ICS 67.040
C 53

中华人民共和国国家标准

GB/T 5009.155—2003
代替 GB/T 17408—1998

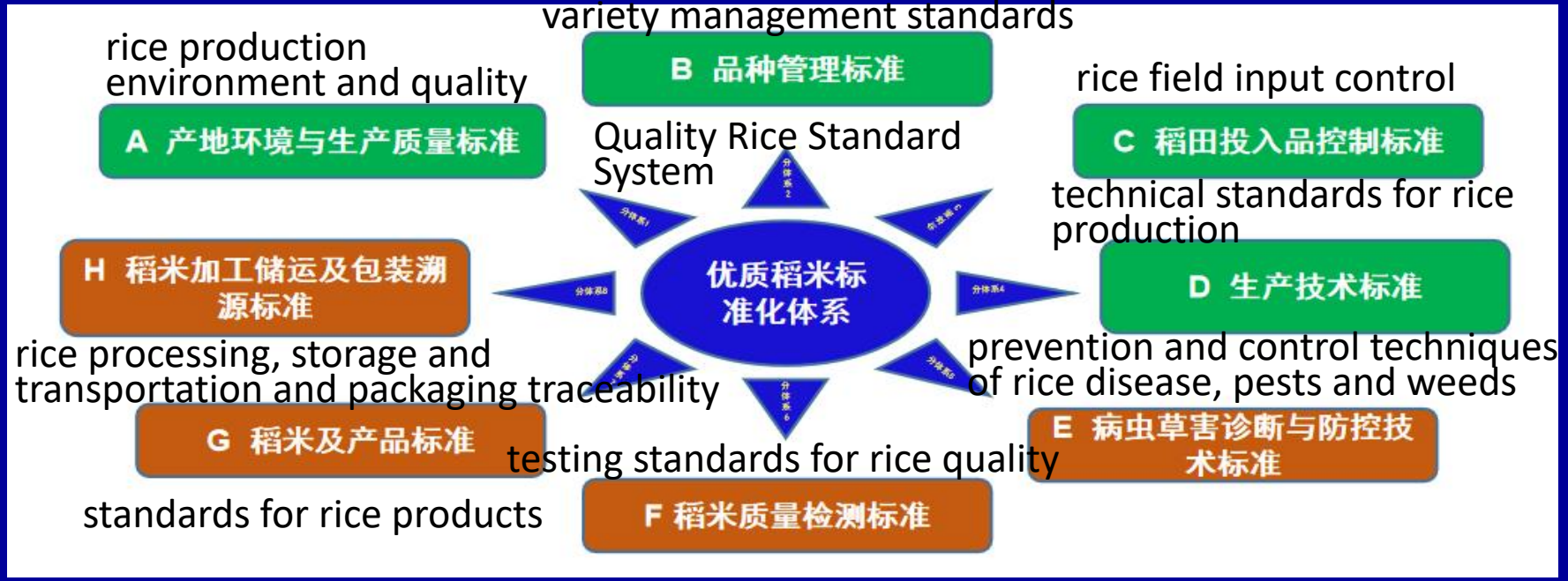
大米中稻瘟灵残留量的测定

Determination of isoprothiolane residues in rice

江苏省的优质稻米标准体系
Quality Rice Standard System in Jiangsu Province

优质稻米标准体系是一个完整的稻米产业链条中的技术规范，以产前、产中、产后全过程标准化要求为链条，详细规定规范了优质稻米的生产、加工、储运等环节。含29个区块共104个具体技术标准，共水稻产地环境与生产质量、品种管理标准、稻田投入品控制标准、水稻生产技术标准、病虫草害防控技术标准、稻米质量检测标准、稻米产品标准、稻米加工、储运及包装溯源等八个领域。

The quality rice standard system specifies the technical norms for the complete rice industrial chain, which sets the standards for the production, processing, storage and transportation for quality rice following standardized requirements for the whole process of rice production(pre-, in- and post-production). The system consists of 29 blocks with 104 specific technical standards, covering areas such as rice production environment and quality, variety management standards, rice field input control, technical standards for rice production, prevention and control techniques of rice disease, pests and weeds, testing standards for rice quality, standards for rice products, rice processing, storage and transportation and packaging traceability.



Quality Rice Standard System in Jiangsu Province

General name of standard system	First level standard system	Second level standard system
Quality Rice Standard System in Jiangsu Province	A, Standards in origin environment and production quality	A1, Environmental standard of producing area
		A2, Production quality standard
	B, Standard in Variety management	B1, Standards for variety approval
		B2, Identification standard for purity and authenticity of varieties
		B3, Standards for disease identification and resistance evaluation
		B4, Standard of high quality variety
	C, Standard of rice field inputs control	C1, Rules for the use of pesticides in rice fields
		C2, Rules for the use of fertilizers in paddy fields
		C3, Standard of paddy field irrigation water
	D, Technical standard of rice production	D1, Technical standard of seed production
		D2, Technical standard of mechanical transplanting
		D3, Technical standard of seedling throwing
		D4, Technical standard of direct seeding rice
		D5, Technical standard for comprehensive cultivation and fish culture in paddy field
		D6, Technical standard of special rice production
	E, Technical standard of pest insects and weeds control	E1, Technical standard for diagnosis of diseases and insect pests
		E2, Technical standard of pest insects and weeds control
		E3, Technical standard for integrated pest control
	F, Technical standard for rice quality inspection	F1, Technical standard for quality inspection
		F2, Technical standard of transgenic detection
		F3, Technical standard for limit the quantity of harmful substances
		F4, Technical standard for determination of nutritional components
	G, Standards for rice products	G1, The standard of paddy
		G2, The standard of rice
		G3, Standards for rice products
	H, Standards for traceability of rice processing, storage, transportation and packaging	H1, Technical standard of processing
		H2, Technical standards for storage
		H3, Technical standards for traceability
		H4, Standard of rice packaging

稻米生产过程中的参与主体

Stakeholders in Rice Production

1、科研单位选育新品种

research institutes: new variety breeding

2、企业生产销售种子

enterprises: producing and selling seeds

3、政府推广部门推介（种子、技术、农药）

government organizations: extension and outreach (seeds, technologies, pesticides)

4、农户、农场生产种植

farmers: plant cultivation

5、粮库、企业收购稻谷

grain distribution stations, enterprises: purchase of rice grain

6、企业加工、包装销售

enterprises: processing, packaging and marketing

食品安全、卫生、执法等行政主管部门全程参与，确保稻米质量安全。

Administrative departments in charge of food safety, food hygiene and law enforcement participate in the whole process of rice production to guarantee rice quality and safety.

中国是如何控制质量标准

How Is Rice Quality Controlled in China?

1、实施主体的标准化生产。水稻产前、产中和产后的实施主体依据国家或行业的质量参数标准进行实施。

Stakeholders' standardized production: implementation by different stakeholders (pre-, in- and post-production) according to national or industrial quality parameters.

2、专门机构的监督检测。区域的市场监督管理部门负责监督、样品检测 ；指定的第三方进行认定；利用现代信息科技及物联网+区块链技术建立水稻溯源系统，消费者自己检查稻米生产过程。

Supervision and test by specialized agencies: regional market supervision and management department responsible for supervision and sample test; recognition by designated third party; consumers checking the rice production process via the rice traceability system which integrates informatics, the internet-of-things and block chain technologies

目标：实现稻米产品“责任主体有备案，生产过程有记录，产品流向可追踪”的追溯管理体系。

Goal: building a traceable management system for rice products in which the responsible parties are registered, the production process recorded and the product flow traceable.

National Commodity Tracible Information Verification Platform

Tracible label :Wuchang Rice

优质稻米生产过程关键环节

Key Links in Quality Rice Production

1、选择合适的品种

Selecting the right varieties

2、产地环境符合要求

Production environment meeting requirements

3、栽培管理技术过程规范（肥、药、水运筹）

Standardized cultivation and management techniques and process (overall consideration of fertilizers, pesticides and water)

4、适时收获

Harvesting at the right season

栽培技术要点

Keys of Cultivation Techniques

选择好品种 Plant High Quality Rice

- **Variety Choosing**

好种：稳产、抗病、适应性广

Good to plant: stable yield, disease-resistant, high adaptability

好吃：食味品质好

Good to eat: good eating quality

好卖：食味品质好、出米率高

Good for the market: good eating quality, High milled rice rate

High-yield, Good eating quality

Basmati, Koshihikari,

Nanjing 46

正规种子

certified seed/registered seed

- 正规包装种子：企业销售的正宗种子
  （提纯复壮的种子）

Certified/registered seed: sold at legitimate enterprises
purified and rejuvenated seeds

- 非正规种子：
  白袋子（无法知悉种源）
  自留种（种性退化）
  不合格种子（纯度不够）
  假种子（套牌种子）

Uncertified/unregistered seeds:
white-bag seed: unable to identify the source
self retaining seed: seed performance degeneration
off-grade seed: purity deficiency
fake seed: counterfeit

优质稻米生产过程关键环节

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栽培技术要点

Keys of Cultivation Techniques

1. 适期播种，培育壮秧

Sowing at the right time, cultivating strong seedlings

2. 适时移栽，合理密植

Transplanting at the right time with suitable planting density

3. 科学肥水管理

Scientific management of fertilizer and water

4. 病虫草害防治

Prevention and control of diseases, pests and weeds

培育壮秧

Cultivating strong seedlings

肥料管理

Fertilizer Application

栽培技术要点

Keys of Cultivation Techniques

水稻理论产量计算方法

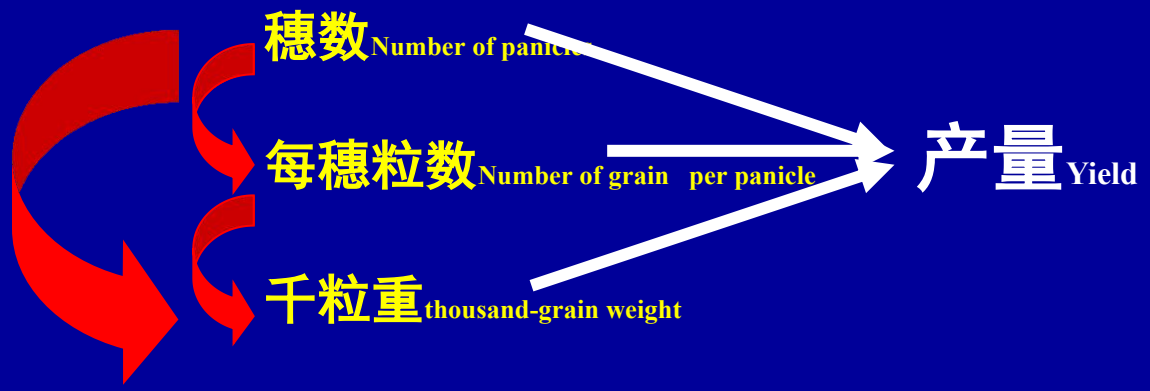
Rice yield calculation in theory

亩产量=亩穗数×每穗实粒数×千粒重

Yield per mu= number of panicles per mu ×number of filled grain per panicle ×thousand-grain weight

每穗实粒数=每穗总粒数×结实率

Number of filled grain per panicle=number of grain per panicle ×seed setting rate



栽培技术要点

Keys of Cultivation Techniques

穗数：一是靠插苗，二是靠分蘖

Number of panicles: seedling transplanting, tillering

每穗粒数：一靠壮苗，二靠穗肥

Number of filled grain per panicle: strong seedlings, panicle fertilizers

千粒重：品种特性、后期养根

Thousand-grain weight: variety characteristics, rooting at late stage

丰收：防病治虫、防倒伏

Harvest: disease prevention and pest control, lodging prevention

栽培技术要点

Keys of Cultivation Techniques

秧苗期：奠定大穗、多穗基础

Seedling stage: laying a solid foundation for big and multiple panicles

分蘖期：增加穗数

Tillering stage: increasing the number of panicles

拔节期：增加粒数

Jointing stage: increasing the number of grains

灌浆期：提高结实率、增加粒重

Filling stage: increasing seed setting rate and grain weight

栽培技术要点

Keys of Cultivation Techniques

肥料运筹

Fertilizer application

施肥原则：前重、中稳、后补。早施足施分蘖肥，拔节期稳施氮肥，增施磷钾肥，后期看苗补施穗肥，并做到氮、磷、钾搭配使用。不是一次施完。

Principles: sufficient at early stage, stable at middle stage, supplemental at late stage. Apply tillering fertilizer early and sufficiently. At jointing stage apply nitrogen fertilizer stably and add PK fertilizer. At late stage supplement with panicle fertilizer according to the rice growth, and use NPK fertilizer combination. Do not apply all the fertilizers at once.

基肥、分蘖肥与穗肥比例以4:4:2为好。

The ideal proportion of base fertilizer, tillering fertilizer and panicle fertilizer is 4:4:2.

分蘖肥分二次使用，第一次在栽后5~7天，间隔5~7天再施，以达到早发促分蘖。

Apply tillering fertilizer two times: the first time falls 5-7 days after transplantation, and the second time is 5-7 days after the first time, so as to promote early growth and tillering.

穗肥掌握早施少施、以促为主的策略。在倒4叶至倒3叶时。

Panicle fertilizer should be applied early with small amount when the top 4th leaf or top 3rd leaf comes out.

水浆管理

Water Management

栽培技术要点

Keys of Cultivation Techniques

水浆管理：

Water management:

原则：前期浅水勤灌促进早发，

中期干干湿湿强杆壮根，

后期湿润灌溉活熟到老。

Principals: at early stage frequent irrigation in shallow water to promote early growth

alternation of wetting and drying at the middle stage for strong stem and root

wet-irrigation at late stage to keep rice stalks green until maturity

分蘖期、孕穗至抽穗扬花期保持浅水层，

其余时间干湿交替，前期以湿为主，后期以干为主。

Maintaining shallow water at the tillering, booting, heading and flowering stage; for the rest of the time adopting the method of wetting-and-drying alternation; mostly wetting at the beginning and drying in the end.

分蘖期：浅水灌溉

Tillering stage: irrigation in shallow water

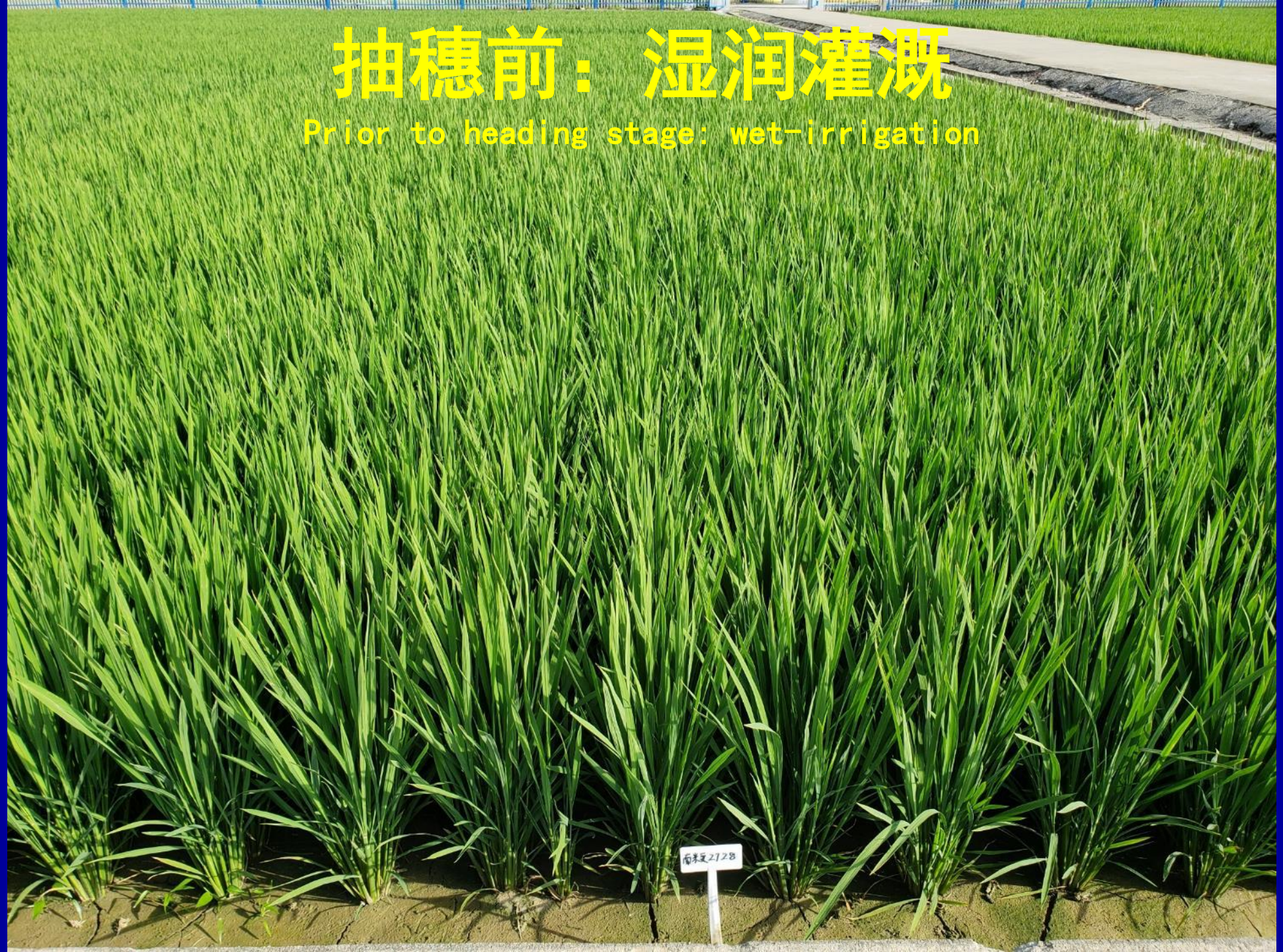

拔节期：烤好田，防止倒伏
Jointing stage: paddy soil drying and lodging prevention

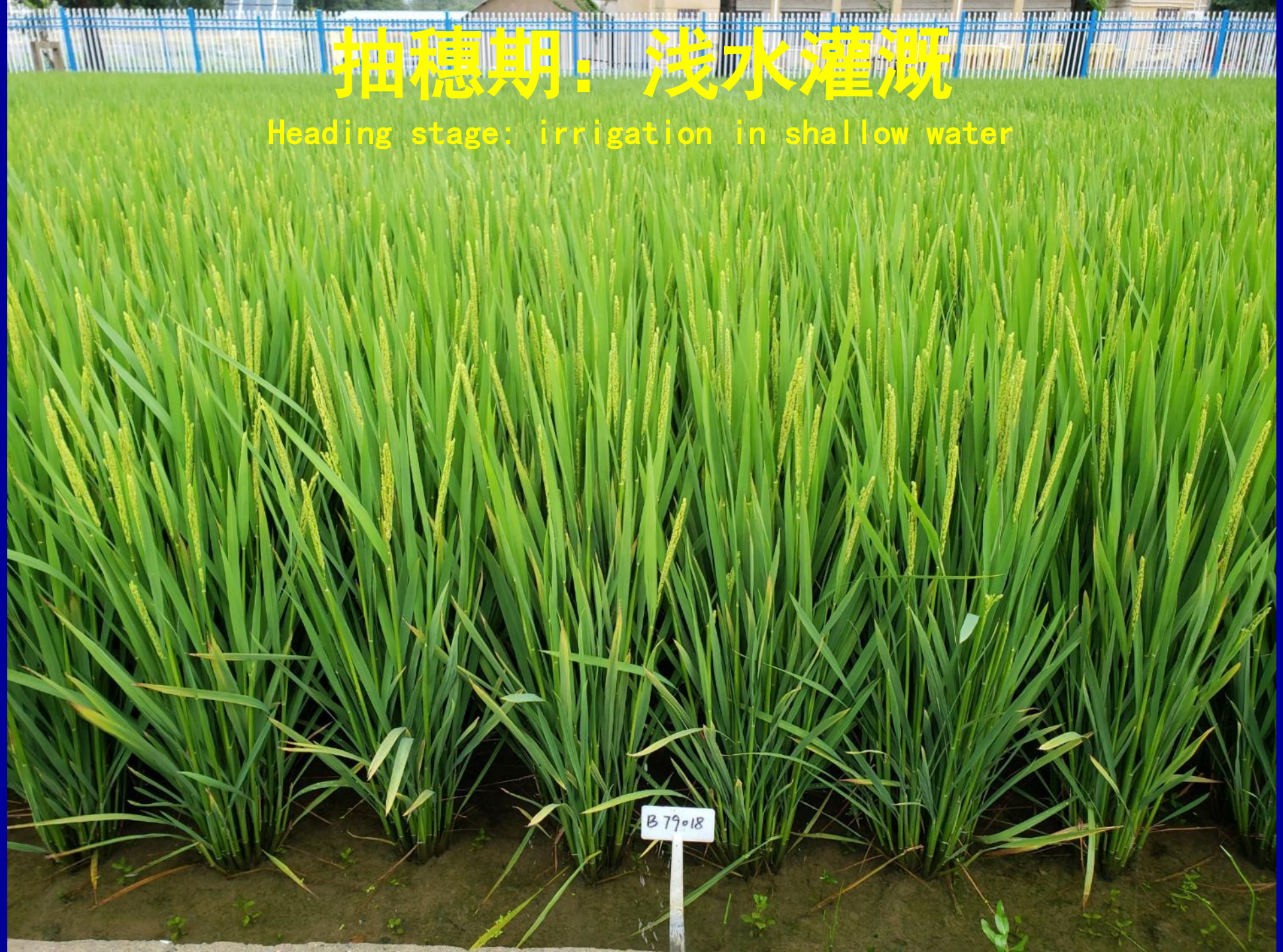
防止倒伏
Lodging Prevention

倒伏与不倒伏茎秆长度比较
Stalk length comparison between varieties prone to lodging and resistant to lodging

基本节间尽量短、粗
Short and strong internodes

水稻不能长期浸泡水中
preventing rice from soaking in water too long


抽穗前：湿润灌溉
Prior to heading stage: wet-irrigation



抽穗期：浅水灌溉

Heading stage: irrigation in shallow water

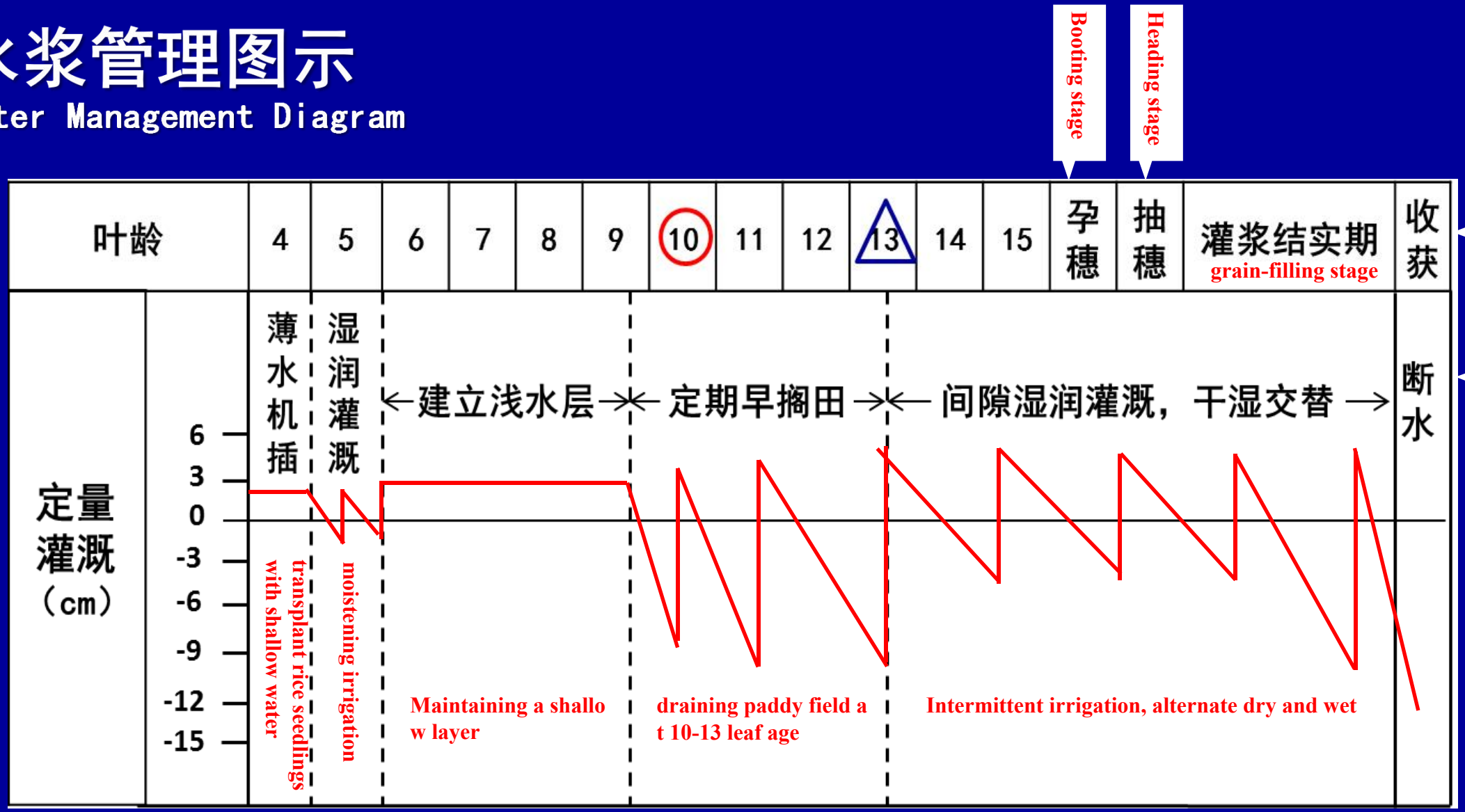
断水过早

Irrigation stopped too early

断水过早造成青枯、灌浆不足、品质变差

Resulting in wilt, insufficient filling and poor quality

水浆管理图示
Water Management Diagram



水浆管理对水稻的重要性

The importance of water management to rice

水稻离不开水，但不同阶段对水的需求量不同。根据水稻各个生育期对水的需要等进行合理灌溉和排水，满足生长发育对水分的要求，达到控制肥力的作用。

Water is indispensable to rice, but rice needs different amount of water at different growth stages, according to which reasonable irrigation and drainage is required so as to meet the demand of rice growth to water and control soil fertility.

秧苗期
seedlings

移栽返青期
transplanted seedlings

分蘖期
tillering

分蘖末期
end of tillering

拔节孕穗期
jointing stage

抽穗扬花期
heading stage

灌浆期
filling stage

成熟期
ripening stage

水浆管理不善影响品质和产量

Poor water management affects rice quality and yield

不同生育阶段中，水浆管理不善都会影响水稻的正常生长。分蘖后期烤田不到位，影响根系发育，增加无效分蘖从而影响产量；拔节孕穗期缺水，幼穗分化受影响，造成小穗、小粒和空瘪粒增多。灌浆结实期和成熟期是稻米品质形成的关键时期，此时的水浆管理对品质影响较大。

Poor water management will affect normal rice growth at different stages. At the end of tillering, if the soil is not dried enough, root development will be affected, ineffective tillering increased and thus yield decreased; water insufficiency at the jointing stage will influence in a negative way the young panicle differentiation, resulting in more spikelets, small and empty grains. Filling and ripening stages are crucial to rice quality and water management exerts greater influence on rice quality.

病虫草害防治

Prevention and control of diseases, pests and weeds

栽培技术要点

Keys of Cultivation Techniques

病虫草害防治

播种前：防治恶苗病、线虫病等种传病害。

前　期：防治好灰飞虱、稻蓟马，

中　期：防治好二化螟、三化螟、纵卷叶螟、纹枯病等，

后　期：注意穗颈瘟、稻曲病、纵卷叶螟、稻飞虱的防治。

Prevention and control of diseases, pests and weeds

Prior to sowing: prevention and control of seed-borne diseases such as bakanae and nematode diseases

At the early stage: prevention and control of small brown planthoppers and rice thrips

At the middle stage: prevention and control of rice stem borers, yellow rice borers, rice leafrollers and sheath blight

At the late stage: prevention and control of neck blast, rice false smut, rice leafrollers and planthoppers

栽培技术要点

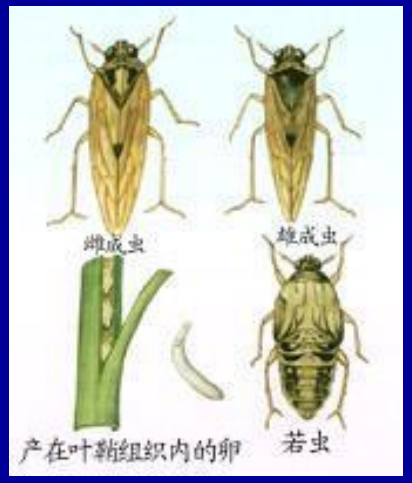
Keys of Cultivation Techniques

黑条矮缩病的防治

Prevention and control of rice black-streaked dwarf virus

秧田期和大田分蘖期防治好灰飞虱

prevention and control of small brown planthoppers in the nursery period and at the tillering stage



灰飞虱图谱 Small brown planthopper atlas

雄成虫 male imago

雌成虫 female imago

危害症状 harmful symptoms

栽培技术要点

Keys of Cultivation Techniques

纹枯病的防治

Prevention and control of rice sheath blight

当分蘖末期纹枯病丛发病率在5%~10%、孕穗期纹枯病丛发病率在15%以上时，每亩用井岗霉素10~12.5克加水50公斤喷雾，每隔7~10天再防治一次。

When the incidence of rice sheath blight is around 5%~10% at the end of tillering stage, and above 15% at the heading stage, spray each *mu* of rice field with the mixture of 10~12.5g of valadmycin and 50 kg of water, and spray again 7~10 days later.

栽培技术要点

Keys of Cultivation Techniques

叶稻瘟的防治

Prevention and control of leaf blast

叶稻瘟预防主要在分蘖末期进行，在发现叶稻瘟症状后立即用药防治，隔5~7天再防治一次。

The prevention of leaf blast is mainly carried out at the end of the tillering stage. Apply pesticides once the symptoms of the rice blast are detected, and apply again 5~7 days later.

栽培技术要点

Keys of Cultivation Techniques

白叶枯病的防治

Prevention and control of bacterial blight

主要发生于叶片及叶鞘上

Mainly occurs on blade or leaf sheath

需要用药物施药水稻时做到有一点治一片，有一片治一块的原则，及时喷药封锁发病中心，防止病害蔓延。

防治宜在上午露水干后或下午露水出现前进行，发病田要先打未发病的区域，最后打发病中心，对发病中心，适当增大喷药量。

When pesticide application is needed, the principle is to extend the application scope and apply pesticides immediately to the disease center so as to prevent it from spreading to surrounding areas.

The application is suggested to be carried out in the morning after the dew is dried or in the afternoon before the dew falls. For the treatment of diseased rice field, pesticide should be applied to the area that is not yet infected first and then to the disease center, and the amount of pesticide should be increased for the disease center.

栽培技术要点

Keys of Cultivation Techniques

水稻细菌性条斑病

Rice bacterial leaf streak

条斑病主要侵染水稻叶片，有时也侵染叶鞘；病斑上常溢出大量串珠状黄色菌脓，干后呈小胶粒状。条斑病病斑边界清楚，对光观察呈半透明条斑。

Rice bacterial leaf streak mainly infects the blade, and sometimes the sheath as well. Large amount of beaded xanthopsis appears on the bacterial leaf spot, which becomes amber-like when dried. Spot of the bacterial leaf streak has clear-cut margin, and looks translucent when observed under light.

对零星发病的新病田，早期摘除病叶并烧毁，减少菌源。

For rice fields with sporadic infections, it is suggested that the infected leaves be removed and burned as early as possible in order to reduce pathogen sources.

栽培技术要点

Keys of Cultivation Techniques

穗颈瘟的防治

Prevention and control of rice neck blast

至少要防治两次，第一次在破口期（稻田零星看到稻穗伸出剑叶叶鞘）或之前2~3天抢晴天防治，第二次在齐穗期（全田80%的稻穗伸出剑叶叶鞘）防治。

Apply pesticides at least twice. The first time falls in the breaching period (sporadic spikes reaching out of flag leaf sheath) or 2~3 days earlier in sunny days. The second time falls in the full heading stage (80% of the spikes reaching out of flag leaf sheath).

第一次的防治效果70%

The prevention efficiency is 70% for the first time

第二次的防治效果30%

30% for the second time

栽培技术要点

Keys of Cultivation Techniques

穗颈瘟的防治

Prevention and control of rice neck blast

抽穗期遇到下雨天气怎么办？

1、宜早不宜迟（抢晴天提早防治）

2、增加防治次数（抽穗期延长，抽穗不整齐）

3、抢雨后间隙补喷（喷药后4小时内下雨）

4、每隔5-6天防治一次（抽穗期低温连阴雨）

What to do if the heading stage falls in rainy days?

1. Take prevention measures as early as possible (apply pesticides in advance in sunny days)

2. Increase the frequency of pesticide application (prolonged heading stage and irregular heading)

3. Apply pesticides between rain intervals (rain falls 4 hours later after application)

4. Apply pesticides every 5~6 days (low temperature and consecutive rainy days at the heading stage)

栽培技术要点

Keys of Cultivation Techniques

穗颈瘟的防治

Prevention and control of rice neck blast

适用于防治稻瘟病的常用药有三环唑、稻瘟灵及这些药的混配剂，如氟环·三环唑、氟环·稻瘟灵等。

预防药：内吸性药剂（三环唑）

治病药：渗透性药剂（稻瘟灵）

预防药与治病药混合使用

不同类型的药交替使用

Common pesticides for rice neck blast include Tricyclazole, Isoprothiolane and their mixtures such as Epoxiconazole and

Pesticide for prevention: systemic (Tricyclazole)

Pesticide for control: permeable (Isoprothiolane)

Mixed use of pesticides for prevention and for control

Alternate use of different types of pesticides

栽培技术要点

Keys of Cultivation Techniques

稻曲病的防治

Prevention and control of rice false smut

分别在破口前5~7天和始穗5%时用药防治，用有效成分含井冈霉素、粉锈宁（又名三唑酮）、多菌灵、三环唑等的药剂防治均有效。

Apply pesticides 5~7 days prior to the breaching period and when 5% of spikes come out, respectively. Pesticides that are proved to be effective usually contain validamycin, triadimefon, carbendazim and trycyclazole.

在破口前5~7天、始穗5%和齐穗期防治3次，可同时防治稻曲病和穗颈瘟。

Rice false smut and neck blast can be controlled simultaneously if pesticides are applied 5~7 days prior to the breaching period, when 5% of spikes come out and during the full heading period.

叶枕距 0
pulvinus interval 0

1厘米
1cm

5厘米
5cm

破口
breaching

7~9天
7~9 days

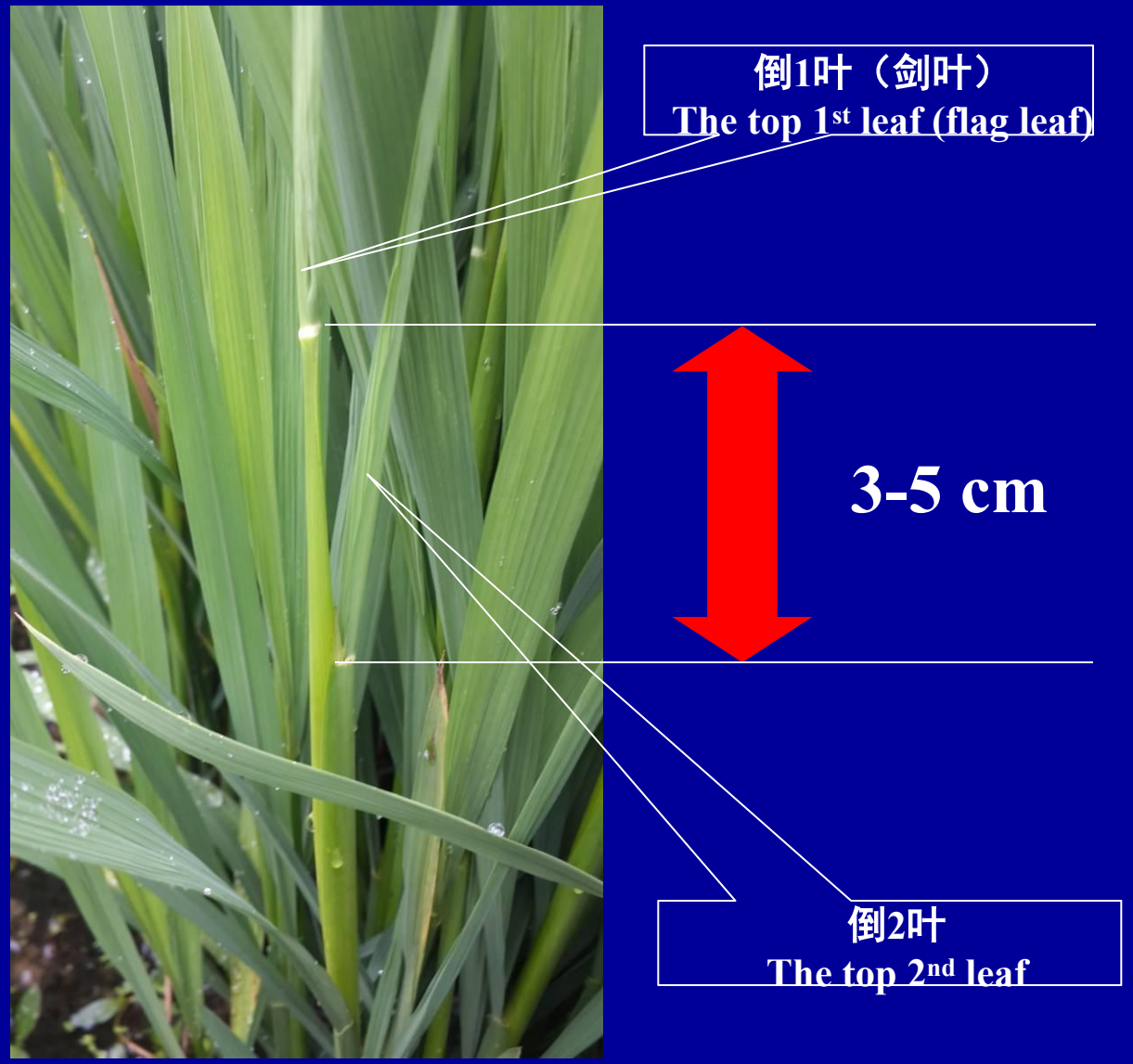
单穗抽穗1厘米
Single spike with 1 cm of heading

群体始穗10%
10% of the spikes coming out

群体抽穗50%
50% of the spikes coming out

群体齐穗80%
full heading with 80% of the spikes coming out

破口前5—7天的标准
Status of rice plants 5-7 days prior to breaching



适时收获

Harvesting at the right time

Timely
Healthy stem
Yellow grains
Transparent rice

Too late
Dead plant
Dry grains
Chalky rice

Timely harvest
Clear healthy grains

Harvest too early
Many immature grains

栽培技术要点理论解析

Theoretical Analysis of Key Cultivation Techniques

生育进程
Development Process

从水稻生育进程或者生育阶段来看，可将其分为生育前期、中期与后期。

The development process or stages of rice could be divided into the early stage, the middle stage and the late stage.

生育前期： 育秧、移栽到分蘖的阶段

The early stage: from seedling cultivation, transplantation to tillering

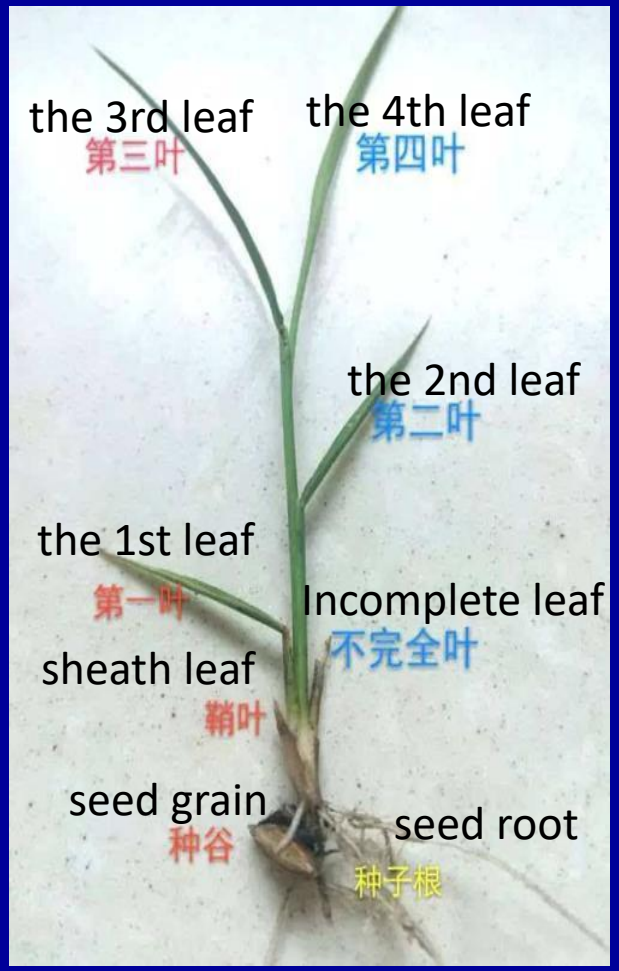
生育中期： 拔节、幼穗分化到抽穗的阶段

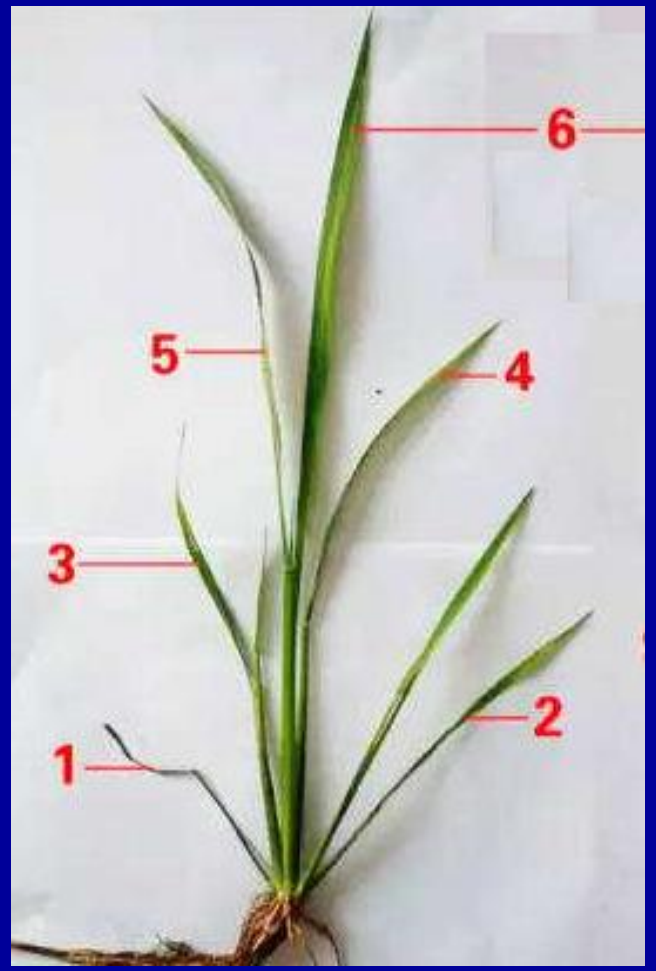
The middle stage: from jointing, young panicle differentiation to heading

生育后期： 指抽穗至成熟的阶段

The late stage: from heading to maturity

水稻叶龄
Rice leaf age





叶片数：N

Leaf number: N

节间数：n

Internode number: n

水稻叶龄是指主茎的出叶片数，主茎上长出第三张叶片时，叶龄为3；长出第五张叶片时，叶龄为5；当第六叶片伸出的长度达到第五张叶片长度一半时，叶龄为5.5。

Rice leaf age refers to the number of leaves on the main straw. When the 3rd leaf comes out on the main straw, the leaf age is 3; when the 5th leaf comes out, the leaf age is 5; when the length of 6th leaf reaches half of that of 5th leaf, the leaf age is 5.5.

叶龄进程
Increase of leaf age

Three crucial leaf ages

5 internodes
15-leaf varieties — booting

5 internodes
16-leaf varieties — booting

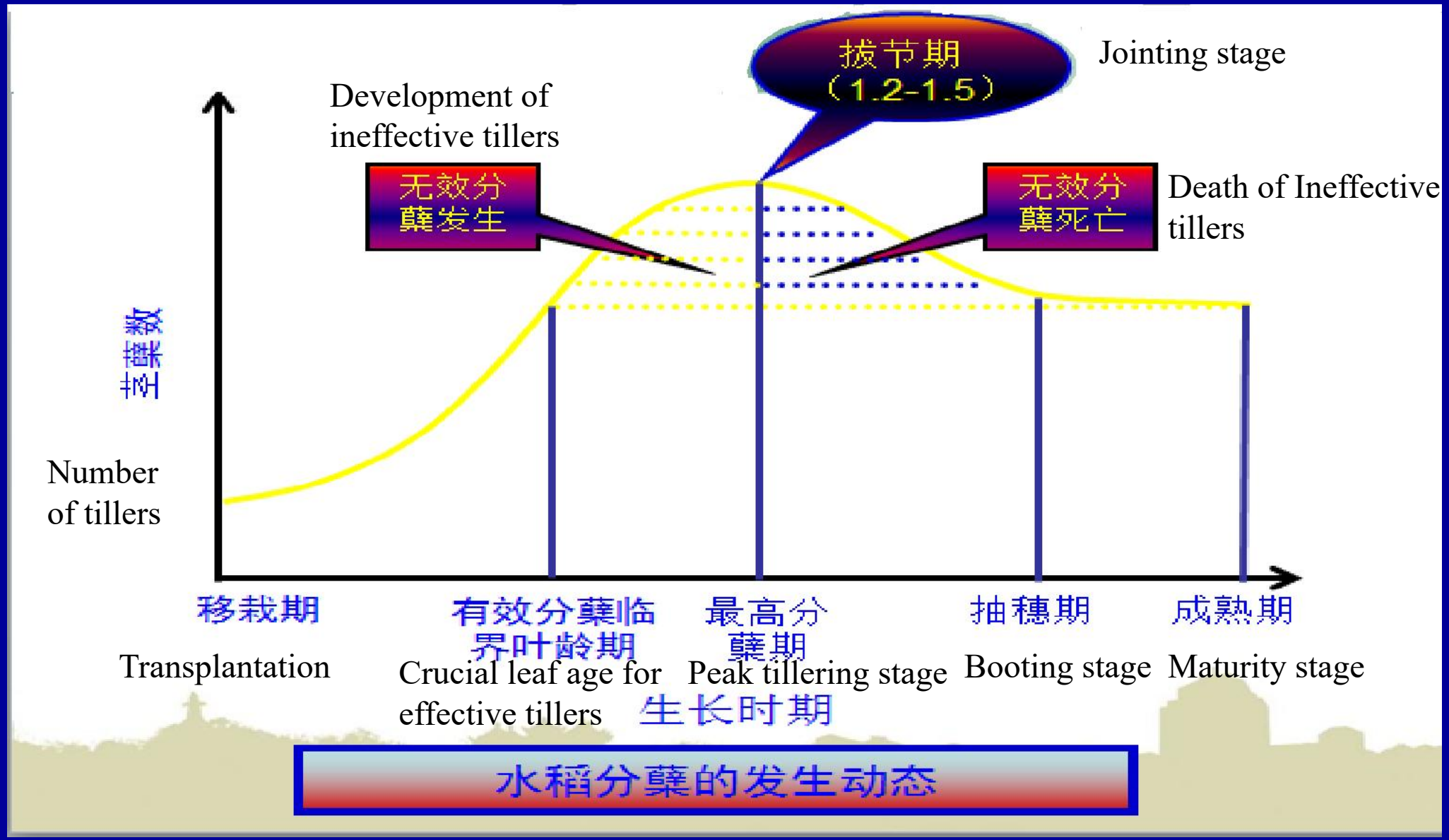
5 internodes
17-leaf varieties — booting

Critical leaf age for effective tillering (N-n)

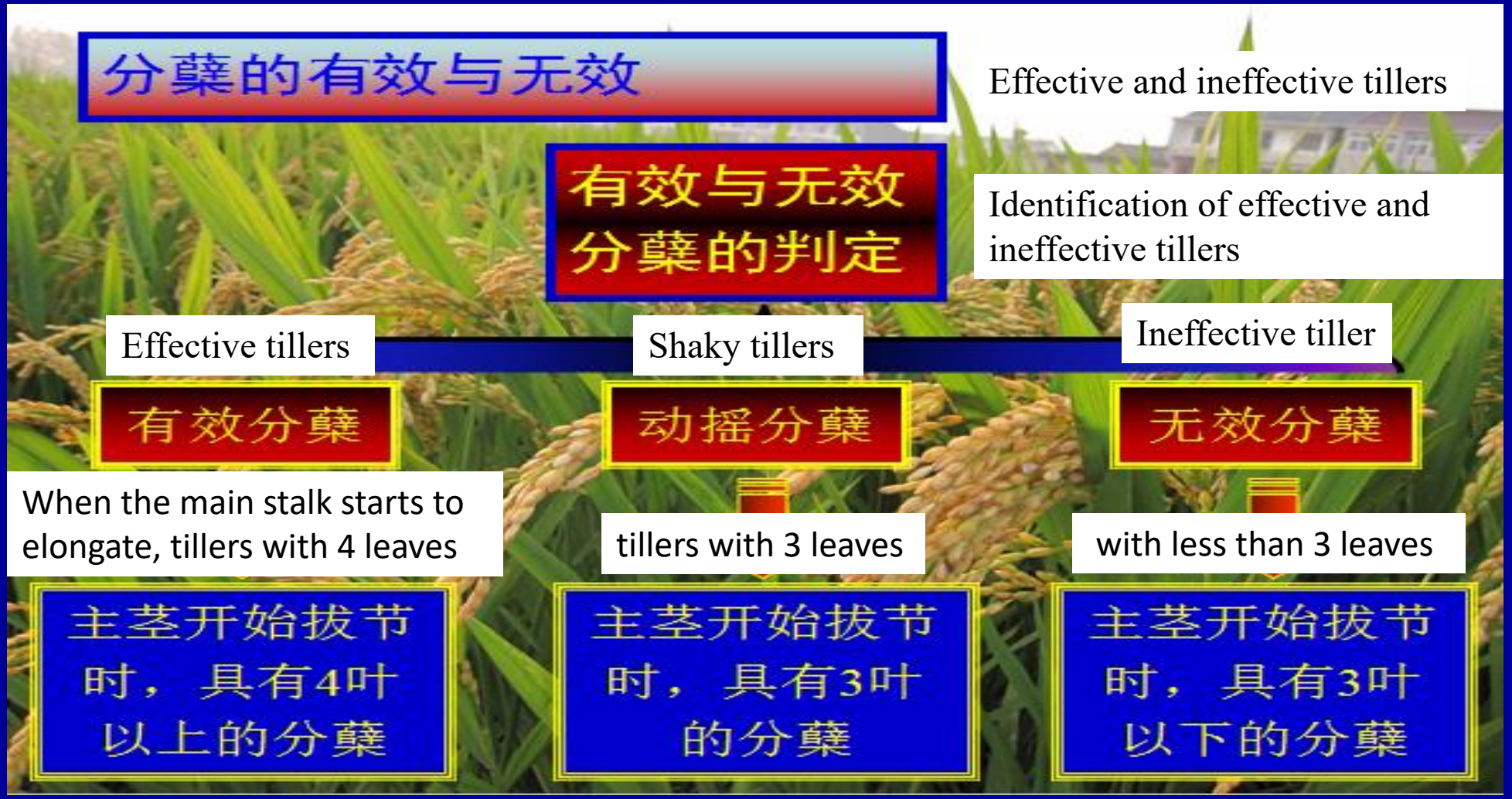
Jointing stage (N-n+3)

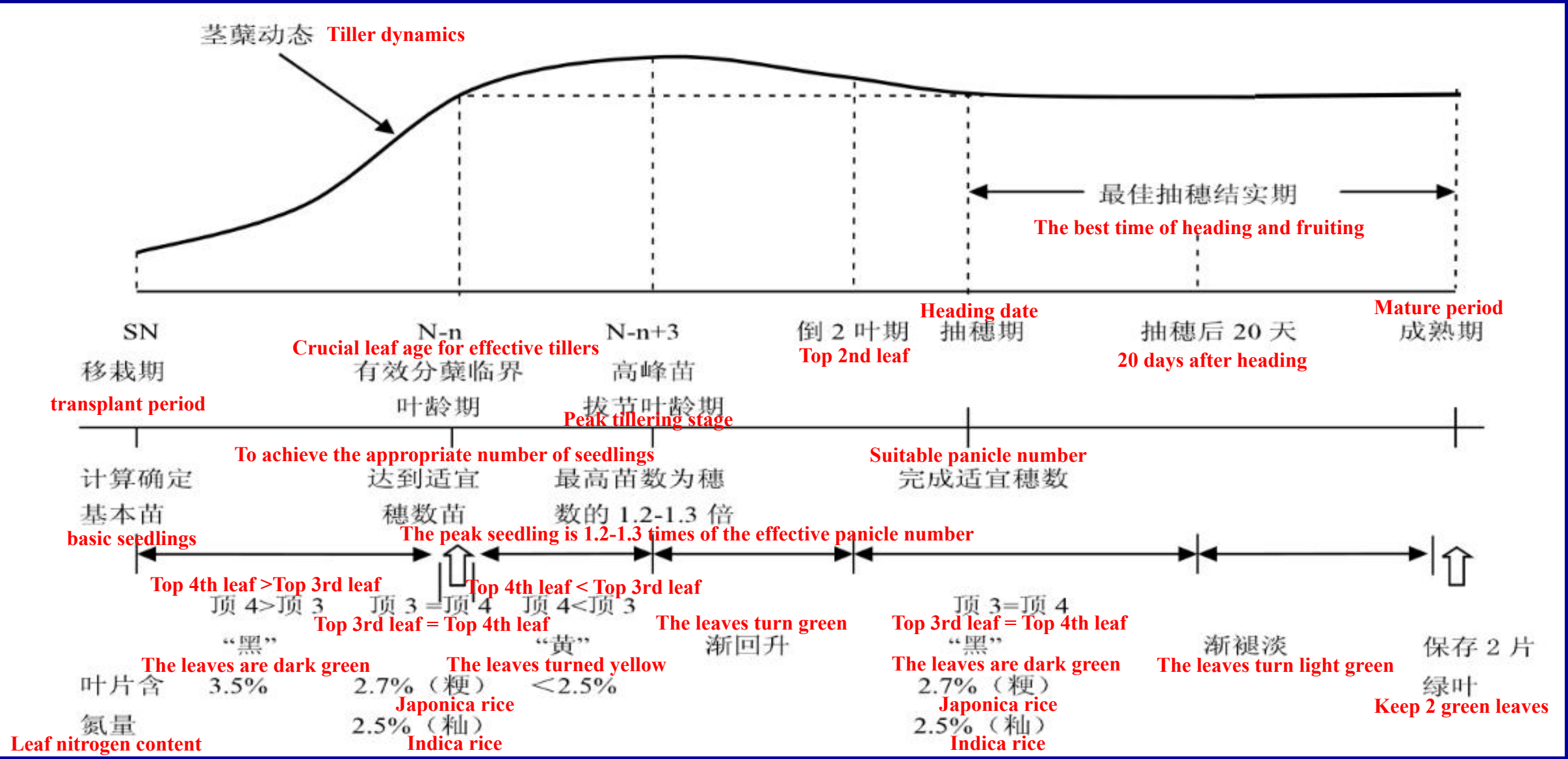
1. Bud differentiation
2. Branch differentiation
3. Floret differentiation
4. Pistil-stamen formation and pollen meiosis
5. Pollen filling

分蘖过程
Tillering process



动摇分蘖
Shaky tillers





水稻的高产群体动态指标图

Dynamic index chart of rice high-yield populations

怎样才能攻取大穗？

大穗形成的必要条件：有基础，有措施、有条件

①壮秆（壮秆是大穗的重要基础）

②控制中期旺长，剑叶初封行，改善通风透光条件（扩行稀植、成穗适宜)

③重施穗肥（提高植株含N率与植株生长量、光合生产量）

What to do to obtain big and full grain?

Prerequisites for big and full grain formation: good basis, effective measures, favorable conditions

① strong straws

② control the vigorous growth at the middle stage, form complete canopy when the flag leaves newly come out and improve ventilation and light transmission (increasing line space, rice planted in low density, optimum panicle number)

③ excessive application of panicle fertilizer (increasing the nitrogen content of plant, plant growth and photosynthetic production)

培育壮秧促早发、适量施用促花肥

Cultivating strong seedlings to promote early growth, proper application of spikelet-promoting fertilizer

中国农民如何掌握这些技术？
How do Chinese farmers master the techniques?

1、国家-省-市-县-镇-村级的推广体系

Extension and outreach systems at national-provincial-municipal-county-town-village levels

2、各类科技推广项目的基地示范带动

Demonstration by various technology extension projects

3、政府财政资金支持的农民培训

Farmer training programs financed by government funds

4、线上的技术问答（专家-农户互动）

Online Q&A (interaction between agricultural professionals and farmers)

5、专家编写的技术小手册

Practical technique booklets compiled by agricultural professionals

产地环境
Production environment

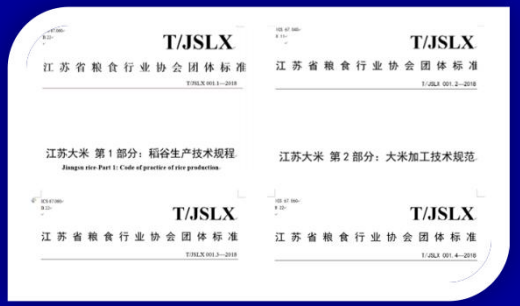
栽培与管理
Cultivation and management

适时收获
Harvest in time

良种
Quality seeds

好吃米饭
Tasty rice

标准体系
Standard system



蒸煮方式
Ways of cooking

品牌打造和管理
Brand building and management

标准化生产
Standardized production

江苏省农业科学院
Jiangsu Academy of Agricultural Sciences

Thanks for Your Attention!