



# Plant Variety Protection and Individual Breeder in Korea

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**The Republic of Korea**

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## Rice Industry in Korea

Growing Area	850,000 ha
Annual Production	4,200,000 ton
No. of varieties registered in PVP	293 varieties
No. of varieties enlisted in National Lists	270 varieties



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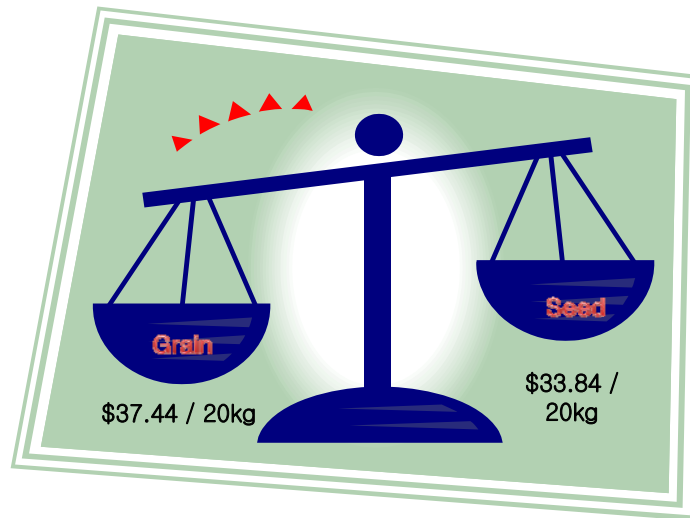
## Breeding and multiplication of Rice in Korea

Subject	Public Sector	Private sector
Breeding	National Crop Research Institute (Rural Development Administration)	Farmer, grower, professor small scale seed company
Seed supply	Korea Seed and Variety service/MIFAFF Seed certification required	Breeder, seed company Seed certification required
Royalty	Absent	Exclusive license with RPC Form harvest material



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## Comparison of Price of Rice Seed and Grain



Price of grain is slightly higher than that of seed because government grants a subsidy for rice seed production



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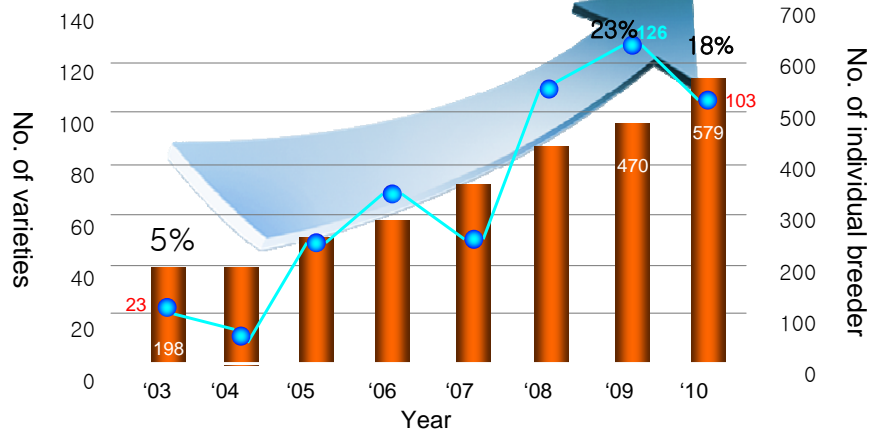
## PVP system & Individual Breeding

- PVP system was enforced in Korea from 1998
- The authority (KSVS) provide an information to individual breeders, encourage them to breed new variety and procedure to get PVP
- Government gives benefits to individual breeders when they develop new variety providing several opportunities undergoes training program (domestic and overseas)
- ❖ **Composition of individual breeder : farmer, grower, professor, small scale seed company**

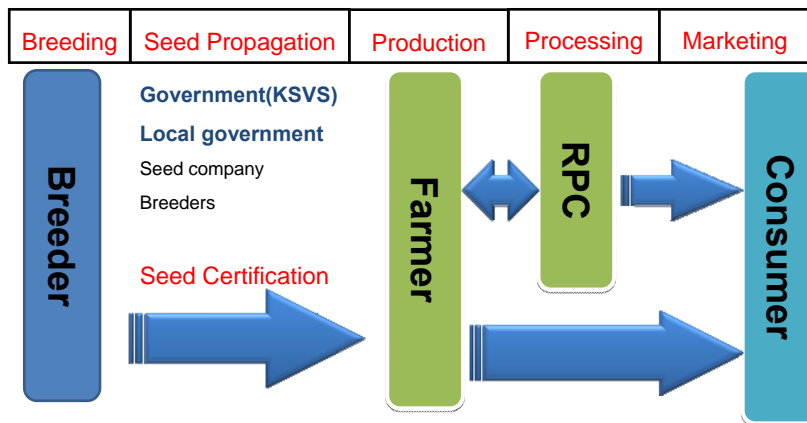


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## Increase of Variety Developed by Individual Breeder in Korea after introduce PVP



## Rice from breeder to consumers



KSVS : Korea Seed & Variety Service,  
RPC : Rice Processing Complex





## Plant Variety Protection of Geumsung

- ❖ Breeder: Younghae KIM/Farmer breeder
- ❖ Application date : 30-03-2000
- ❖ Characteristics
  - Maturity: early
  - Flag Leaf Attitude: semi erect
  - Leaf length: short
  - Stem length: medium(88cm)
  - Panicle awns: very short
  - Decorticated grain shape: semi round
  - Decorticated grain color: light brown
  - Endosperm type: Non-glutinous



Granted PVP on 15 march 2002  
( 29/5/2002 ~ 28/5/2022 )



# Distribution of the Geumsung

Seed of Geumsung rice



Procedure of seed propagation

**Breeders' seed (breeder)**

Provide 500kg of pre-basic seed every 2 years



**Certified Seed (Yeoju county)**

Propagation & certification of Geumsung (1.5ha)



**Farmers**



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# Growing Area & Production of Geumsung Rice

Estimation, 2012

Region	Area	Production
Yeoju	200ha	1,200 ton
Ulsan	20ha	120 ton
Others	80ha	480 ton
Nationwide	300ha	1,800 ton

**Total amount of seed supplied to farmers is estimated 18 ton (\$30,000) in 2012**



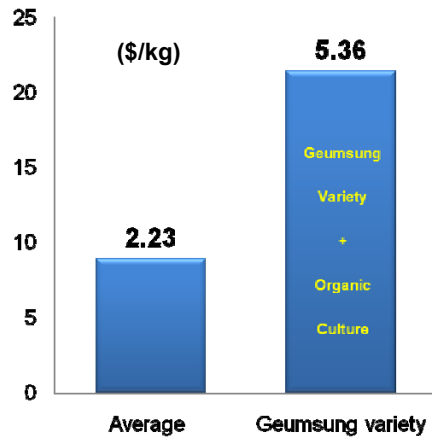
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## Commercialization of 'Geumsung'



Small size packing of 'Geumsung' rice

Price of White Rice Geumsung



## Awarded 'Korea Top Variety Award'

Received from Minister of Ministry of Agriculture, 7 December 2007





## Plant Variety Protection of Jinsang

- ❖ Breeder : Yoo-hyun CHO/small scale seed company ('Seedpia')
- ❖ Application date : 22-03-2011
- ❖ Characteristics
  - Maturity: early to medium
  - Flag leaf Attitude: semi erect
  - Panicle awns: very short
  - Panicle exertion: moderately-well
  - Decorticated grain shape: semi round
  - Endosperm type: intermediate
  - Alkali digestion: completely digested
  - Decorticated grain aroma: absent



**Jinsang      Chucheong**

Under the DUS examination  
(Application number : 2011-

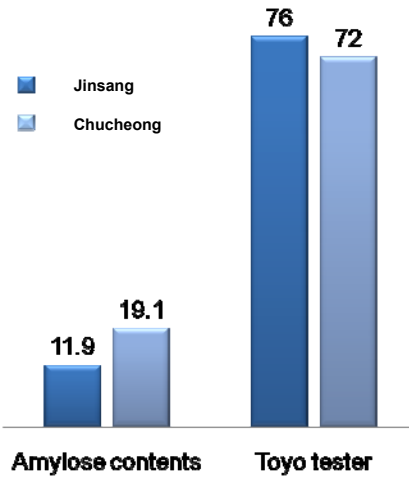




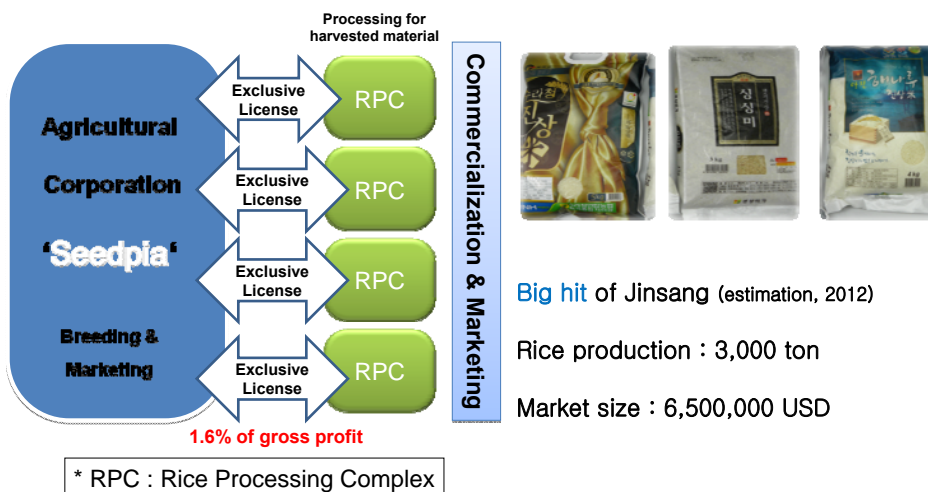
# Good Taste rice Jinsang

Low amylose content : 11.9%

Delicious : Toyo tester 76



## Exclusive license with 4 RPC of 'Jinsang'





Case Study 3 : Seonong 6 rice

## Plant Variety Protection of Seonong 6

- ❖ Breeder: Hee-jong KOH/professor
- ❖ Application date : 28-02-2000
- ❖ Characteristics
  - Maturity: late
  - Flag Leaf Attitude: semi erect
  - Stem length: medium to tall(107cm)
  - Panicle awns: very short
  - Panicle exertion: just exerted
  - Decorticated grain shape: semi round
  - Endosperm type: glutinous
  - Embryo size: very big



Granted PVP on 15 march 2002  
( 16/5/2002 ~ 15/5/2022 )



# Functionality of Seonong 6 Rice



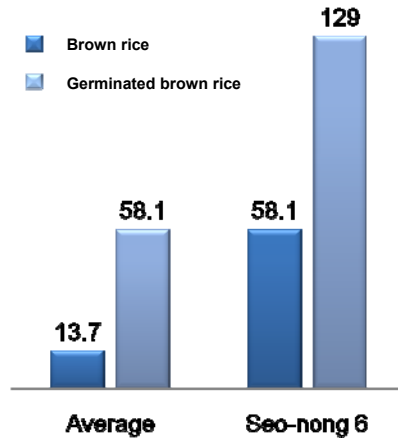
## γ-amino butyric acid (GABA)

inhibitory neurotransmitter

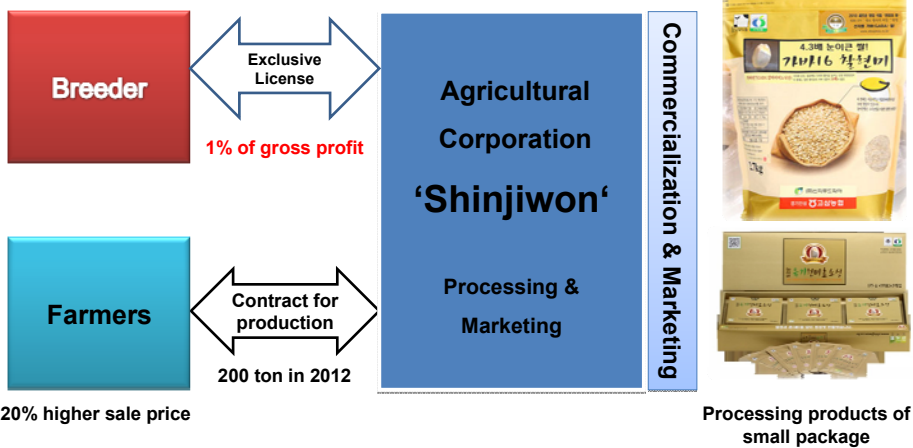
to prevent over-firing of the nervous cell

to help brain cell metabolism

GABA contents (Pm/g)



# PVP Implementation of Seonong 6



## Future Rice Breeding in Korea

- Government has pushed the farmer breeding as future growth engine of Korea seed industry
- Potential individual breeders came out and lots of varieties developed last 10 years
- Their varieties were cultivated and made the money to the farmers
- They found a diverse way to make a profits from their own varieties
- Contract with RPC or agricultural corporation through exclusive licensing followed successfully in Korea
- Seed price of rice produced by government should be at least equal with private rice seed to make competitiveness rice seed industry in Korea

