

NutBoost: A Wonder Formulation of PGPR for Groundnut

What for?

- ☐ Improving growth and yield of groundnut
- ☐ Improving solubilisation, mobilization and uptake of nutrients (P, K, N, Fe, Zn, etc.) from soil
- ☐ Improving soil health
- ☐ Managing fungal pathogens in soil

The composition of the consortium:

- ☐ *Pseudomonas gessardii* BHU1 (PGPR1)
- ☐ *Pseudomonas putida* S1(6) (PGPR2)
- ☐ *Pseudomonas fluorescens* BM6 (PGPR4)

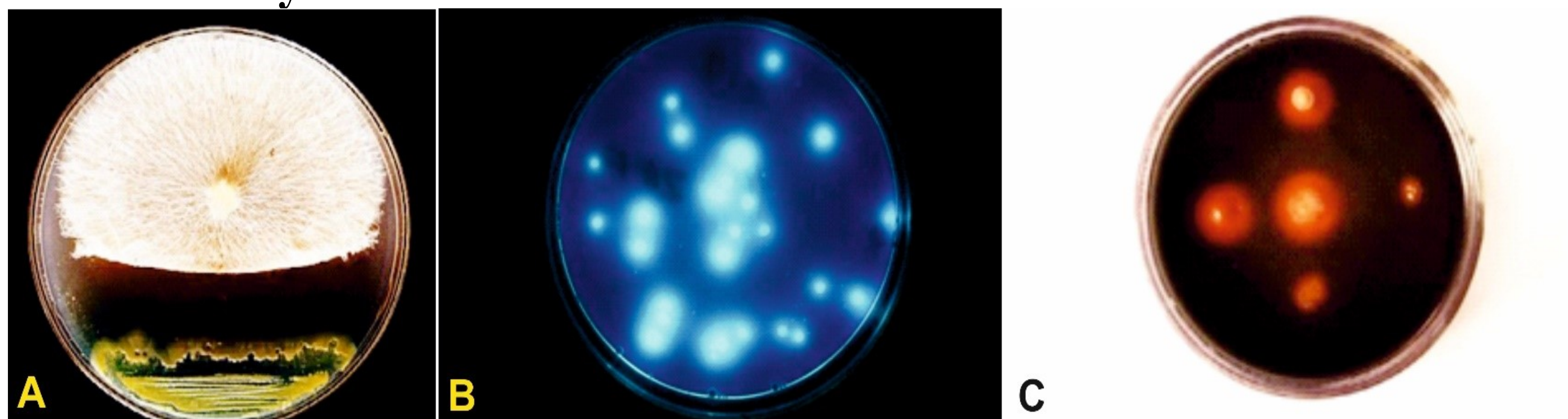


What the consortium does?

- ☐ Produces ACC deaminase (an indicator of plant growth promotion)
- ☐ Solubilizes fixed forms of phosphates
- ☐ Produces siderophore (mobilization of Fe)
- ☐ Produce antifungal metabolites (against stem and collar rot pathogens)
- ☐ Produces plant hormones like IAA, Gibberellins, etc.
- ☐ Transforms organic form of nitrogen into inorganic forms
- ☐ Solubilizes non-available forms of Zn and K

What are the benefits?

- ❖ Nominal in cost (Rs.150-200/ha)
- ❖ Yield advantage upto 18%
- ❖ Improvement in soil health
- ❖ Improvement in nutrient mobilization and uptake like P, K, N, Fe, Zn, etc. (P, Zn, and K solubilizers) by 5-7%.
- ❖ Minimizes incidence of soil-borne fungal pathogens (*S. rolfsii* and *A. niger*)
- ❖ Compatible with seed treating chemicals like Bavistin (Carbendazime)/Thiram
- ❖ Very fast growing and ease in large scale multiplication
- ❖ Useful for both irrigated and rainfed conditions
- ❖ Formulated “NutBoost” (liquid/charcoal/talcum powder/FYM) has a shelf-life of more than one year at room temperature
- ❖ Can easily be applied through irrigation water or through FYM or through drip beside seed treatment
- ❖ Easy to apply
- ❖ Eco-friendly



Traits of PGPR of ‘NutBoost’ formulation: A= antifungal activity against *S. rolfsii*; B= production of fluorescent pigments; C= production of siderophore



Effect of inoculation of PGPR of “NutBoost” formulation: D= in pots; E&F= in field condition

Availability of the formulation:

The technology is ready for commercialization and the details are available with AgrInnovate India Limited and with the ICAR-Directorate of Groundnut Research, Junagadh.

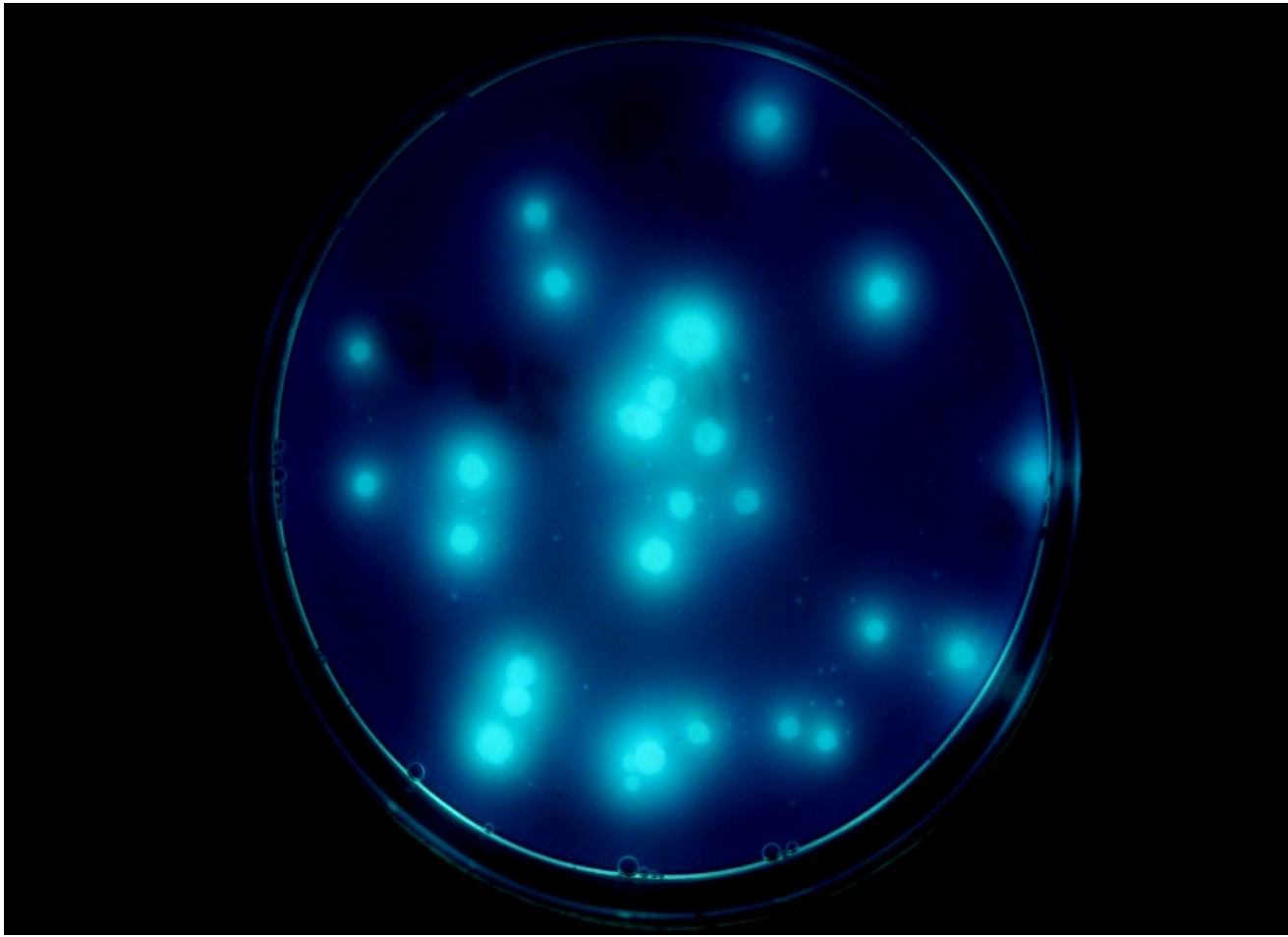
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‘NutGrow’: Insurance against soil-borne diseases of groundnut

What is it?

Formulation of diacetyl-fluoroglucinol producing multiple plant growth promoting fluorescent pseudomonads capable of developing suppressive-soil upon repeated use in the same field which will help the soil to become naturally suppressive to soil-borne fungal pathogens



What for?

- ☐ Improving growth and yield of groundnut
- ☐ Improving solubilisation, mobilization and uptake of nutrients (P, K, Fe, & Zn) from soil
- ☐ Improving soil health by suppressing soil-borne fungal pathogens and nematodes
- ☐ Suppressing of major soil-borne fungal pathogens of groundnut like *S. rolfsii* & *A. niger*

Who are these DAPG-producers?

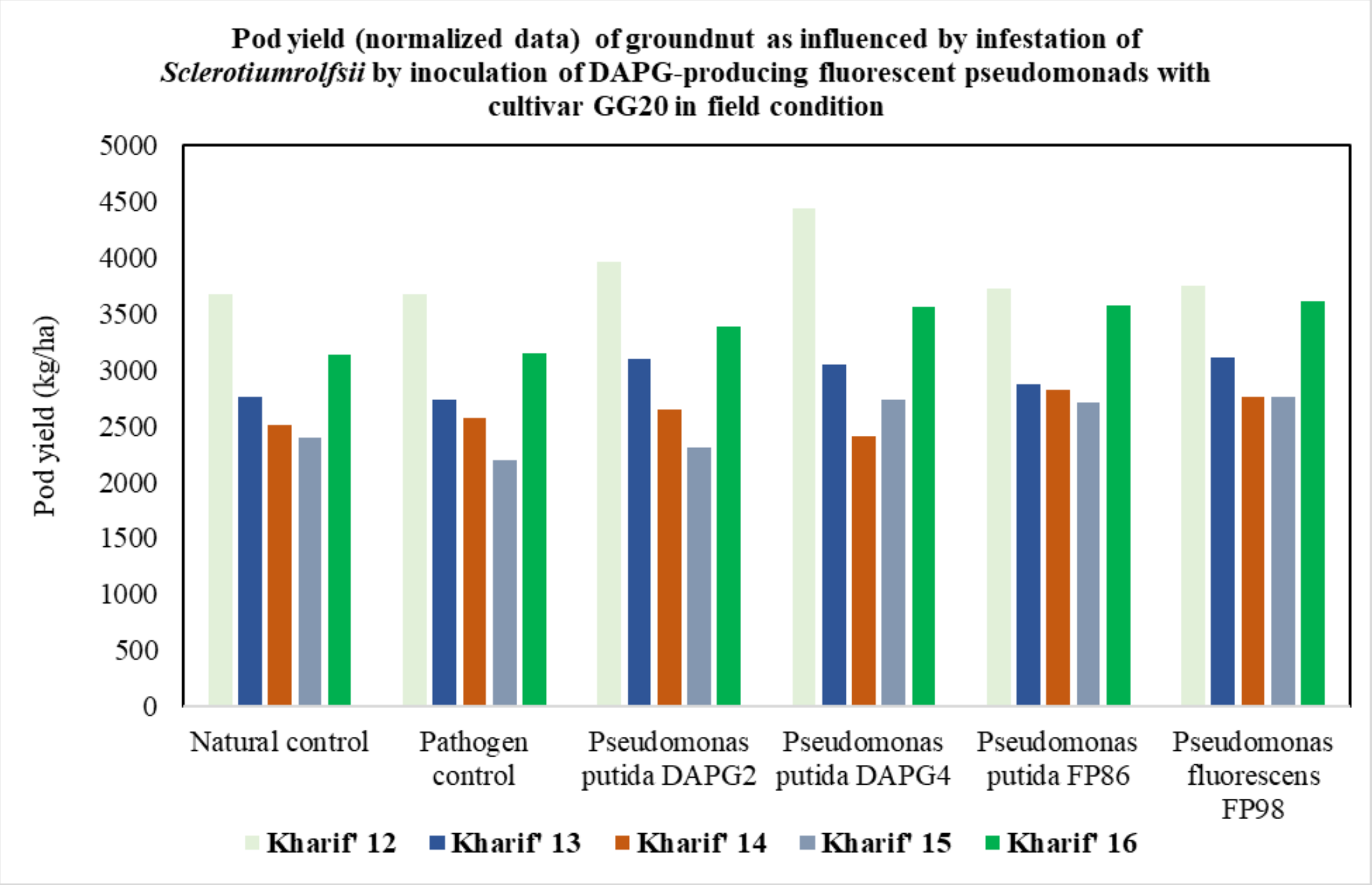
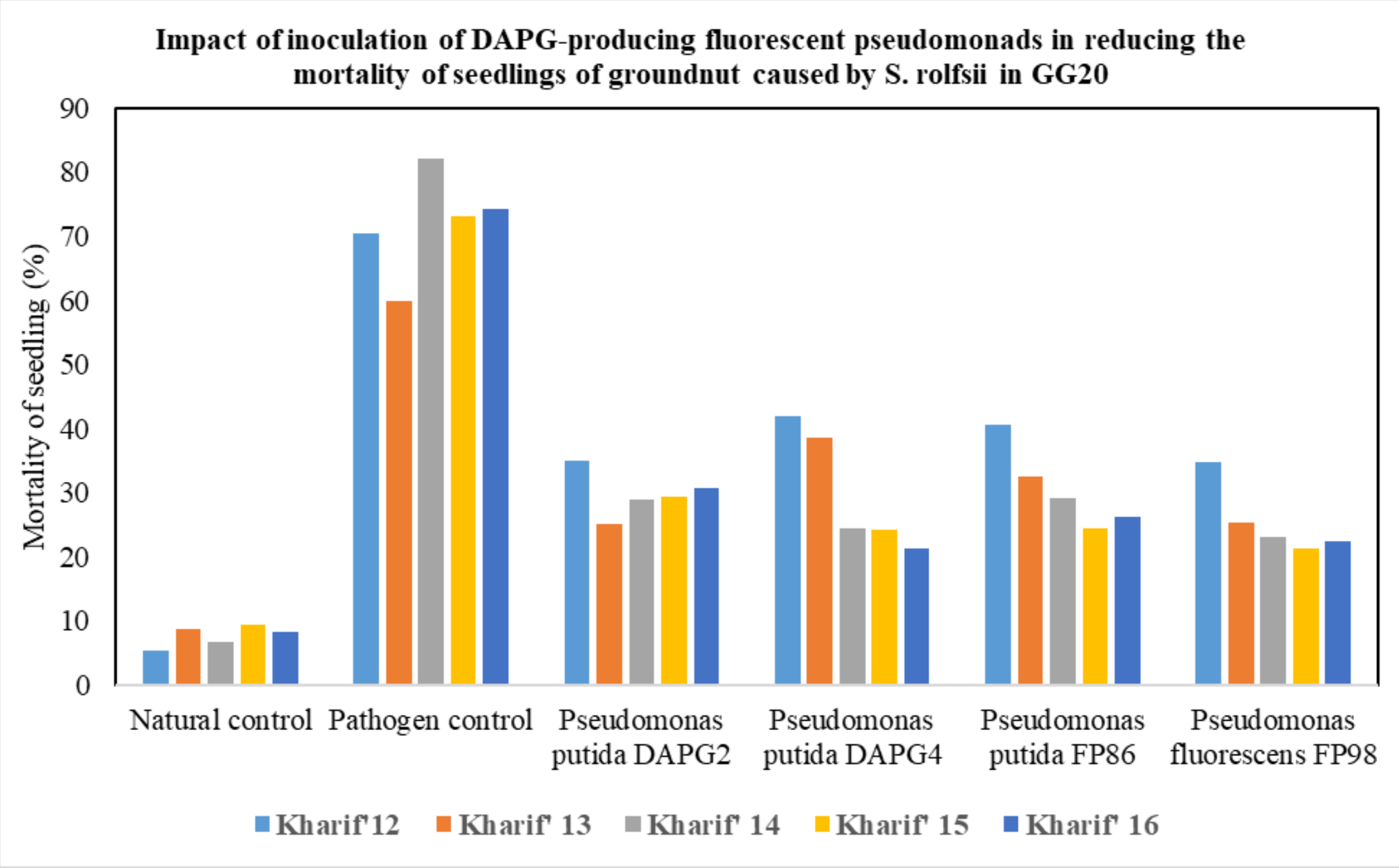
Strains	Identified as	Traits
DAPG 2	P. putida DAPG2	Afu, IAA, Ammo, Phos., Sid, HCN, etc.
DAPG 4	P. putida DAPG4	Afu, ACC, IAA, Ammo, Phos., Sid, etc.
FP98	P. fluorescens FP98	Afu, ACC, IAA, Ammo, Phos., Sid, Gibb., etc.
FP86	Pseudomonas putida	Afu, ACC, IAA, Phos., Sid, etc.

What ‘NutGrow’ does?

- ☐ Produces DAPG-a broad spectrum antibiotics for suppression of soil-borne fungal pathogens like *S. rolfsii*, *A. niger*, *A. flavus*, etc.
- ☐ Produces IAA, gibberellins, siderophores, volatiles, HCN, etc.
- ☐ Solubilizes fixed form of phosphates, K, Mn, Zn, etc. and make them available
- ☐ Produce ACC which improves seedling vigour and thus better plant stand

What benefits NutGrow provide?

- ☐ Improves yield by 20%
- ☐ Reduces incidence of collar and stem rot by 40-60%
- ☐ Improves soil health by suppressing plant pathogens
- ☐ Improves availability of macro- and micro-nutrients (P, K, Mn, Zn, etc.) by 20-25%
- ☐ Controls nematodes in soil
- ☐ Formulation in liquid, charcoal, talcum powder and peat has shelf-life of more than one year at room temperature
- ☐ Compatible with Bavistin/Thiram, eco-friendly and can be applied with FYM/irrigation water/drip/drenching etc.



Availability of the formulation:

The technology is ready for commercialization and the details are available with AgrInnovate India Limited and with the ICAR-Directorate of Groundnut Research, Junagadh.

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