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Sustaining the productivity of pulses through recent advances of innovative plant breeding

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The short fall production in pulses can be minimised through altered by introgression of wild gene and modification and changing the anatomy of plant towards high yield and easy harvest.Threatening global warming is alarming to all crops, for which suitable anatomical crop modification is required to withstand and without yield loss. To sustain the productivity is highly possible in pulses and also other crops by imposed ideotype concept in future. The ultimate achievement in pulses by exploiting broad genetic base material are to be used in their crop improvement programme. There is a system of cultivation for stabilizing the higher yield potential to maintain the productivity of respective crops under various environmental conditions. There are certain crops in pulses exhibiting higher yield in extremes environments *viz*; drought, high moisture, high temperature, low temperature and other abiotic stresses, such type of crops utilized in crossing programme for evolution (or) identified and exploited further.A crop ideotype refers to be modern plant or ideal plants type for specific environment should be evoluted as location specific variety. Formerly refers to a combined various plant character which enhance yield of economic produce, whereas later refers to the morphological function of the chromosome of plant species, the physiological, biochemical traits also includes the breeding concept of the crop ideotypes. The ideal plant types are to be evaluated for higher yield than the old cultivator in a defined environment. The plant type modification is goal to get self changing capacity of plants to climatic condition and method or type of cultivation.

A model genotype role should be stand for national level policy and market requirement. Such plant type evoluted itself is tedious and slow. It is become viable with various morphological, physiological and biochemical characters involved or combined a single genotype from different sources exhibiting remarkable potential in future. In this case research priority should be given for ideotype plant breeding can be useful method for crop improvement programme which is used to enhance yield potential through genetic manipulation of individual plant characters are chosen in a such way that each character contribute towards increased economic yield. Ideotype variety is having their own limited capacity for economic yield (20 -30 %) without any support, while other technologies used, the ideotype will be given more yield than our expectation. Developed plant types should have shorter duration, more number of productive pods and seed weight, with increased level of per day productivity. Various plant characters should be included in modern plant type are to be identified through correlation analysis only these characters which exhibits positive association with yield exploited physiologically potential genotype as modern plant for enhancing sustainable yield potential from the ideal genotype through system of pulses intensification (SPI). Model plants should have high harvest index with synchronization maturity without reducing the yield. The genotype utilize the light energy from atmosphere in to the chemical energy should give more value of sink. For keeping standard productivity by evaluating varieties in all crops adopting ideotype concept, the ideotype not only to yield and also suitable for mechanical harvest when labour shortage is arised. The vision of double the yield and triple the income realised from only through ideotype, at the same time not price fluctuation. The double the yield and triple the income only success in stable price in all crops in all seasons. When the crops may be adopted in marginal soil under irrigated condition for getting higher yield by adopting at least few core technology given to the concern crops as SPI are as follows.

1) Line sowing should be taken according to the crop spacing adaptation
2) Weeding must be done 10-15 days after germination (Black gram and Green gram).
3) Two irrigations must be given during 20th and 35th days after sowing (or) at least one irrigation should be given in flowering period.
4) 2 % DAP spray should be given at 5 -10 per cent flower emergence. Another spray was given 15 days after first spray . If possible third spray should be given based on crop duration to get stable yield.

The ideal plant type system, can achieve to maintain highest average productivity (1250 kg/ha) in pulses using this techniques.

Dr. M.Pandiyan, currently working as Dean, Agricultural college and Research Institute at Eachangkottai, Thanjavur district, Tamil Nadu. He is a pulse breeder, great visionary of high yielding variety development and innovative breeding. He has guided 7 M.Sc. (Ag.) and 4 Ph.D. students. He has produced more than 65 national and international publications in the reputed Journals with high impact factor, 10 books and 107 popular articles. He had been awarded as Fellow of National Academy of Biological Science, India and Fellow of Japanese NIAS, 20 national awards including TNAU beset researcher, best extension worker awards and best Zonal Krishi Vigyan Kendra award for southern zone 2016 and one international award for NIAS, Japan. He has contributed eleven varieties, nine varieties for state and two varieties for all India. Crop varieties crop viz: Blackgram, Greengram, Redgram, Spinybrinjal, Acid lime and Sugarcane, Five innovations, One patenting and Five varietal registration at NBPGR, New Delhi. He has visited many Asian countries Japan, China, Indonesia Singapore, Malaysia and Thailand as visiting scientist. He has developed the first international donor for mungbean Yellow Mosaic Virus and bruchids resistance through wide hybridization. He has developed entrepreneurs, satellite farmers, farmers teacher and seed producers for lively hood development. He had developed infrastructures for research ₹ 11 crores and educational institution development ₹16 crores.