IDT8-011 | Advances in chickpea crop improvement for improved productivity and resilient cropping systems in Ethiopia

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Chickpea (*Cicer arietinum* L.) is an important food legume in Ethiopia. Its production is challenged by low productivity of landraces, poor farming practices, and biotic and abiotic stresses, among others. To address these challenges, EIAR has partnered with CGIAR centers and developed improved chickpea varieties, along with integrated crop management technologies that have increased productivity. Central to these efforts is the Tropical Legumes Projects (TL) funded by the Bill and Melinda Gates Foundation. Since the inception of the Tropical Legume project in 2007, six '*kabuli*' and five *'desi'* chickpea varieties have been released. TL project also supported efforts to avail high-quality seed of improved varieties to many small holder farmers through participatory variety selection and demonstration activities. Eighteen farmers' seed producer associations have been established to fill up supply gaps for high quality seed. Seed production of improved chickpea varieties from 2008 to 2015 amounts to 50t breeder, 788t basic and 14,495.47t certified/Quality Declared Seed. The national average production and productivity of chickpea has increased by 60% and 51%, respectively, over the same period coupled with 16% growth in export volume. Chickpea improvement program is currently focusing on disease resistance, drought and heat tolerance, mechanical harvesting and herbicide tolerance to cope up with the changing climate and the need of specific production corridors.

IDT8-012 | The effects of cultivation methods and water regimes on root systems of one drought-tolerant (RD6) and one drought-sensitive (RD10) rice varieties of Thailand

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In this study, we have attempted to investigate the effect of different water-saving cultivation techniques on root systems of two Thai rice varieties. The variables were two rice varieties (RD6 and RD10), two cultivation methods (dry direct seeding and transplanting), and two soil moisture regimes (field capacity [FC] and 50% FC). RD6 variety had higher root number, root length, and root length density compared with RD10 under transplanting method at FC. At flowering stage and at FC, the number of roots for RD6 and RD10 raised through transplanting method was 543 and 392 per plant respectively, compared with root number of 415 and 362 per plant for RD6 and RD10 respectively, raised through dry direct seeding method. Root dry matter was the highest for RD6 cultivated through dry direct seeding method, compared with transplanting method at FC for both tillering and flowering stages. RD6 variety resulted in 25% and 50% higher root dry matter at FC for dry direct seeding than transplanting, at tillering and flowering stages, respectively. The performance of RD10 was poor under 50% FC and dry direct seeding method. With proper selection of variety, dry direct seeding method could be a better alternative for sustainable rice cultivation under water-limited environments.