



cultivator, it has now been possible to formulate a yield target-oriented fertilizer schedule based on the principle of balanced nutrition of crops. In Vikarabad district of Telangana, five FLDs were conducted in rice crop with target yield of 60q/ha to popularize the use of fertilizers through STCR fertilizer prescription equation. The mean initial nutrient status in these locations was 152 kg N, 45 kg P₂O₅ and 352 kg K₂O ha⁻¹. On an average, the fertilizer requirement based on STCR approach for this crop was found to be 137 kg N, 39.5 kg P₂O₅ and 47.5 kg K₂O/ha. However, the farmers realized yield in the range of 57 to 60 in these locations with a mean 59.3 q/ha due to soil test-based fertilizer use. The mean economic gain variation due to change in fertilizer use and yield between use of STCR equation and farmers own method worked out to be Rs 7,035/ha.

INTRODUCTION AND PERFORMANCE EVALUATION OF CITRUS GERMPLASM UNDER HOT ARID ECOSYSTEM OF RAJASTHAN

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Abstract

In arid regions, citrus cultivation is found highly suitable under irrigated conditions. Citrus is covering highest area and production among the fruit production of Rajasthan state but productivity is low due to lack of adaptable varieties and apposite technologies. With this view, various varieties of sweet orange and interspecific hybrids of mandarin were planted in the field during 2015-2016. Among the sweet orange varieties, the Sathgudi, Hamlin and Jaffa were found superior based on plant growth, compatibility index and fruit yield; while, Washington navel was found poor performer in fruit yield due to self-compatibility issues. Further, the fruit quality attributes viz., juice content, TSS, acidity and ascorbic acid were found superior in Sathgudi, Pineapple and Valencia Olinda. Besides, the performance of interspecific hybrids Fremont and Daisy mandarins was accredited best performer regarding fruit yield and quality of fruits. Fremont and Daisy mandarin were produced the number of fruits/plant (210 and 110), fruit weight (145 and 240g), juice percentage (55.60 and 58.60), TSS (13.62 and 13.95 °Brix), acidity (1.09 and 95.6 mg/100 ml), ascorbic acid (58.09 and 63.57 mg/100 ml), ripening index (14.97 and 17.44) etc., respectively. While the Michal, Murcot, Pear Tangelo and Fairchild were found inferior in fruit yield, size, juice percent, sweetness and organoleptic quality. In both, Fremont and Daisy mandarin cultivar fruits were ready for harvest in the month of mid-November which is the lien period for citrus fruits in the arid market because sweet orange and kinnow were harvested from September to October and mid-January to mid-March, respectively. Therefore, Fremont and Daisy mandarin may be helpful to get remunerative prices and continuous supply of fresh citrus fruits in the arid region.

DEVELOPMENT OF SEED, ROOTSTOCK AND CLONAL PLANT STANDARDS OF *LASODA* (*CORDIA MYXA* L.) FOR CONSERVATION OF ELITE TYPE AND MASS MULTIPLICATION OF QUALITY PLANTING MATERIALS

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Abstract

Lasoda fruits have good potential to provide nutritional and livelihood security and has long been associated with health, nutrition and other uses. Almost all plant parts of lasoda are used for one or other purposes. The fresh tender fruits are used for making vegetable and pickles. They are also dried for consumption as vegetable in off-season. Mature fruits are rich in carbohydrates, vitamins, minerals and total ash with high medicinal values. Ripe fruit can be used as a diuretic, anti-helmenthic, demulcent, expectorant, anti-tumorigenic and also used in preparation of Ayurvedic medicines. This fruit tree has not yet been utilized as an orchard crop, though its importance and uses are well known. The demand for quality planting material of lasoda has increased manifold in the country in the recent past. However, the greatest bottleneck in the expansion of area is the non-availability of genuine and quality planting material in adequate quantity from reliable sources. Lack of technical standards of lasoda multiplication limits its area expansion in the country. It is multiplied by seed and vegetative means from local types by nurserymen due to lack of named variety. Healthy and quality planting material is the prerequisite for agro-forestry, orchard plantation as well as raising of rootstocks. Therefore, the present study was conducted to standardize the seed, rootstock and planting material standards of lasoda during 2018-2020 at ICAR-Central Institute for Arid Horticulture, Bikaner, Rajasthan, India. The ripe fruits from mother tree of lasoda 'Thar Bold' were collected and categorized as bold, medium and small based on size and weight. Thereafter, 160 seeds were sown each in field bed (1m x 2 m) and in root



trainers; the raised seedlings under both the conditions after 2-3 weeks at two true leaf stage were shifted in polybags for seed and rootstock standards. To study the planting material standards, the scion buds of current season's growth were collected from 'Thar Bold' mother lasoda tree during third week of May, June and July months and budded on already raised seedling rootstocks. On the basis of findings of above experiments, technical standards were developed with following prerequisites; ripened fresh fruits should have diameter ≥ 1.5 cm with ≥ 6 g weight, seed germination should be more than 60%, seedlings require minimum 25-30 days period with height of about 5-6 cm during shifting, seedlings should attain buddable stage (height 35-40 cm and girth 0.6-0.8 cm) in about 5-6 months from seed sowing, age of rootstock should be 9-12 months with 8-10 mm girth and bud union at 15-20 cm above ground level, budding should be done during May - June months, plants with sprouts length = 50 cm and diameter = 0.5 cm should be good for planting with total plant height about 65-70 cm. The developed standards would be highly useful for conservation of elite type and large-scale multiplication of quality planting material of lasoda for commercial orcharding in the country.

WHEAT GRAIN : POTENTIAL SOURCE OF ANTIOXIDANTS

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Abstract

Wheat grains and its fractions contain significant level of antioxidant activity due to the presence of phytochemicals, such as carotenoids, anthocyanins, phenolic acids and tocopherols which are beneficial in curing many disorders. The aleurone fraction of wheat bran is highly rich in phytochemicals. The antioxidants and phytochemicals present in wheat have several health benefits, like ability to act as, immunoenhancers, antioxidants and inhibitors of certain lesions. The phytochemicals and antioxidants components prevent life's important molecules like DNA, RNA, proteins and other enzymes from their oxidative damage through different mechanisms. Thus, the whole grains are associated with a reduced risk of several forms of cancers, many heart diseases and improves the regulation of blood glucose. Secondary metabolites in wheat such as polyphenols are mainly involved in defense mechanism against biotic and abiotic stresses. Wheat antioxidants play a vital role in bread industry. People are getting aware to use the bakery products that are prepared from the wheat flour due to proper and improved nutritional composition, healthy lifestyle and functional properties. In nutshell, the beneficial effects associated with whole wheat grain consumption have been found due to the existence of the unique phytochemicals of whole grains.

FARM ENERGY BALANCE AND EFFICIENT MANAGEMENT : THE SOCIOLOGICAL AND ECONOMICAL AND ENVIRONMENTAL ANALYSIS

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Abstract

Efficient Energy management is the best way for direct and immediate reduction of over use of energy in farmer fields. Chhattisgarh is known as the "rice bowl" of India. The present study was conducted in patan block of durg district in Chhattisgarh with the sample size 105 small farmers cultivating rice crop. Information was obtained with the help of personal interview method during study period. Perception level of energy management in rice crop at community level increase the adoption level of improved technology management. Hence, this study was conducted to know the perception level of energy management, energy consumption, energy balance and its relationship with personal, socio-economical and agro-economic characteristics of rice grower. Energy balance is subtraction difference between input and output. The output was rice grain and inputs were human labour, animal power, machinery, irrigation chemical fertilizers (NPK), diesel fuel, plant protection chemicals, seed, and electricity. Total input and output energy equivalent (MJ). The coefficient of variation of this variable is 17.24 per cent which shows that this variable has got the very high level of consistency. Energy consumption in rice crop (Y_1) has been found to be the mean value of this variable is 21947.25 and the standard deviation is 3784.10 for the total distribution taken for the study. The coefficient of variation of this variable is 17.24 per cent which shows that this variable has got the very high level of consistency. The coefficient of variation of this variable is 13.51 per cent which shows that the variable has got