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Who benefits from collective actions? Membership determinants and economic impacts of coffee farmers' cooperatives in Ethiopia

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Using household survey data of 305 coffee farmers from Ethiopia, we explore the determinants and impacts of cooperative membership on farmers' economic performance. The logit model results reveal that the probability of farmers' decision to join cooperatives increases with age, education level, family size and land property. Moreover, owning a TV, eco-certification and relative closeness of cooperatives to bigger city where farmers can easily access information positively affect the likelihood of household decisions to join a cooperative. On the other hand, estimation results using propensity score matching (PSM) show cooperatives have no unique impact on members' economic performance and output. However, cooperatives have a positive economic impact on the whole community, regardless of membership. The results suggest that there is need for a mechanism to maximize the benefits of members to keep the cooperatives alive, more attractive and more sustainable.

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Aluminium toxicity of soybean and black soybean cultivars through root morphological character and aluminium accumulation in root tip

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Aluminium (Al) is toxic to plants particularly and primarily inhibiting root growth resulting the stunted root in early vegetative growth of soybean (*Glycine max*) and black soybean (*Glycine soja*). This research aimed to study the root growth response of Al accumulation in root of both soybean and black soybean cultivars to variability of Al toxicity. This research was conducted in green house, Bogor Agricultural University, Indonesia from April up to May 2015. Using these three cultivars i.e., Tanggamus (*G. max*), Cikuray (*G. soja*) and Lokal Malang (*G.soja*), the experiment was conducted in 14-days using nutrient solution in water culture with Al concentrations set at 0.5, 0.7 and 0.9 mmol L^{-1} and without Al concentration as check. Based on sensivity index of root length we found that Tanggamus was categorized as moderately Al-tolerant cultivar, Cikuray was Al-tolerant cultivar and Lokal Malang was Al-sensitive cultivar. Hematoxylin staining through lateral section of roots structure showed that there was no Al accumulation in check concentration. While in 0.5 and 0.7 mmol L^{-1} Al concentration we found that all cultivars accumulated Al in epidermis and cortex without destruction of these tissues. In contrast to moderately Al-tolerant and Al-tolerant cultivars, the highest Al concentration severely damaged root cells of Al sensitive cultivar.

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Milk production in Armenia

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The systems of milk production mostly classified into low-input subsistence-based (predominant for Africa and Asian countries), extensive pasture-based (predominant system for Ireland and New Zealand) and intensive stall-fed systems (predominant system in United States, Canada, and Western Europe). According to our investigations the increase of milk production approximately by 12% was described in 2014 compared with the 2010 in Armenia. The increasing of milk production volumes after the 2013 based on developing of both intensive and extensive systems despite the limited use of intensive systems in Armenia.

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