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No Experimental Layout, No Measurements — But Still Valid? Lessons from a Farmers’ Knowledge and Experimentation Process with Herbaceous Legumes in Southern Benin and Northern Nigeria

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Abstract

Most studies on local knowledge are descriptive. They are either concerned with the subject matter of local knowledge, with its tacit character, or with the accuracy of farmers’ epistemology. Studies on how farmers process information into conclusions are seldom. This deficit of procedural information on local knowledge is probably due to the experiential character of farmers’ epistemology, which is often based on non-differentiated experiment designs where observations, layout, and control/treatment plots are generally not documented.

Using a spatio-temporal framework, we tried to open the epistemological ‘black box’ of 498 farmers experimenting with two baskets of 5 and 6 non-grain legume options that were introduced, respectively, in 4 villages each in southern Benin and northern Nigeria.

The results consistently show that farmers used a two-stage experimentation strategy for evaluating the performance of green manure and forage legumes. The first stage consists of inferring the potentials of legumes from their growth characteristics before testing the hypothesised performance of the legumes concerned. So were *Mucuna pruriens* and *Pueraria phaseoloides* favoured as promising green manure legumes in southern Benin, while measurements on demonstration plots proved that *Stylosanthes guianensis* performed better than *M. pruriens*. *Stylosanthes guianensis* was excluded because of its small leaf size and slow growth in contrast with the large leaved, fast establishing *M. pruriens*. In northern Nigeria, *Centrosema pascuorum* and *Macrotyloma uniflorum* were preselected as promising forage legumes, because of their ‘spreading growth habit’. In contrast, legumes such as *Stylosanthes hamata* and *Chamaecrista rotundifolia*, whose intake was shown to be higher than that of *C. pascuorum*, were excluded by the participants.

Based on these findings, we conclude that legume research should not only focus on evidencing the nutritive value of a forage legume or the rate of nitrogen fixation and release of a green manure legume but also on visual features from which farmers can infer these properties. This plea is particularly vital from the perspective of farmers, who do not have the means to disaggregate the agronomic performance of legumes in analytic elements that are measurable in laboratory.

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