

Use of mobile phone in rural area for agriculture development.

In most developing countries, agriculture is the main source of the population's income. Lack of access to relevant information leads to low yields, farmers' stress and low income. Nowadays Information and communication technologies (ICTs) have the potential to transform agriculture in rural areas. The focus here is to know how can ICT participate in the development of agriculture through mobile phone in rural milieu in Africa. Can smartphones and its applications participate effectively in the development of agriculture in Africa rural area? Can the Unstructured Supplementary Service Data (USSD) code system participate in the development of agriculture in Africa rural area? We will start by showing how smartphones are participating in the development of agriculture, then we are going to present some of its limits in the rural milieu and at the end we are going to show how the USSD code can best participate in the development of agriculture in this milieu.

Smartphones and its applications have come with great innovations. The applications have been developed to help farmers reduce stress, acquire relevant information on good agriculture practices, weather, quality input, market tendency, etc. Through social media, web sites and other applications, farmers can improve their skills, share experiences and even sell their products online using their smartphones.

In Cameroon for instance from "*le document de conception du Programme de Promotion de l'Entreprenariat Agropastoral des Jeunes (PEA-Jeune)*" the population (youth and women) is essentially rural, and the rural youth are poorly educated. In fact, more than 61% of Cameroon population live in rural area and about 78% are less than 34 years old. Only 6 over 10 know how to write and read in one of the official languages (French and English), and 48% of the youth have a primary school level. From analysis carried out in a small village in Cameroon in the Center Region, at LEKIE Division, 15 farmers (6%) over 250 have a smartphone. 10 out of 15 use it simply to receive and make calls, 3 know about social media but have limited knowledge on their uses and 2

(coming from the urban area) have an average knowledge on how to use the smartphones and its applications. Apart from that, smartphones are still expensive for farmers and there is a network problem in rural areas, this leads to poor or no internet connection. So, despite the multiple smartphones applications and web sites put in place for agriculture development, this is going to have the best impact if these constraints are being taken into consideration.

Nevertheless, most people in rural areas often communicate through simple mobile phones which are less expensive and affordable. In Cameroon there are three mobile operators which are more present in rural areas and most farmers (about 98%) have in average two SIM cards. The youths and women (active population groups) have good knowledge on the manipulation of these phones when it comes to dialing to making calls, to verify the SIM number or their account/balance. In order to benefit from bonuses given by the operators they regularly use USSD codes (*xxx# or #xxx#). For agriculture development especially in cacao commercialisation, to have the price of the day, farmers dial a given USSD code and they can have the price in just a few minutes. This system can have the best impact on agriculture development, through it, farmers can have relevant information on quality input, weather conditions, market tendency, also according to their zone and type of crop produce farmers can benefit from quality and adapted advice on good agricultural practices through short message services (SMS).

Smartphones and their applications are innovations bringing good solutions for agriculture development in order to help farmers to have access to relevant information. It participates in the amelioration of agriculture extension work and advisory services. In Africa rural areas, this innovation is limited due to their expensiveness, to poor or absence of internet connection and farmers' insufficient knowledge on their utilisations. From these constraints, innovators should think of alternatives that can best help farmers and that is adapted to Africa rural areas such as development of tools easily accessible through simple phones that provide relevant information through SMS and the USSD code system.

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