The use of information technology in animal traction development

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Abstract

Information technologies (IT) can be used to inform farmers of the advantages and benefits of animal traction and to change the perception of government officials and others who oppose this technology. The effectiveness of the three main conduits of IT exists in rural terms, namely television, radio and printed media are discussed. Printed media may not be as fast as radio and TV but that the retention value is a clear advantage. It is important to be able to supply related subjects e.g. animal traction together with animal welfare and tillage practices. The four basic factors that need to be considered when addressing information needs are: simple language, structure and logic, brief points and a stimulating subject. The message should also address an exact goal, locate and solve an exact problem and address the right target audience.

The lack of support policies for IT in the development of animal traction in place in South Africa is highlighted. IT plays a role in all three phases of research technology transfer, namely material transfer, design transfer and capacity transfer. It is suggested that children can be taught a love for farming through IT at schools and through non-formal education. In Asia an improvement of computational skills and literacy in primary schools resulted in an increase of 9% in farm yields. This may be the result of the high demand placed on farmer verbal and numeric literacy by the increasing complexity of new farming practices.

Introduction

We are here today to find solutions to proliferate the use of animal traction in developing farm areas. Modern technology provides a vast array of agricultural implements. These are enticing to the new farmers because they were possibly introduced to powered mechanics on their employees farm or saw it in action on a neighbouring commercial farm. Implements, including various tractors manufactured abroad, were brought into the country and sold to subsistence farmers without backup service or available spares. Current traders in these implements are faced regularly with request for repairs to these now obsolete models and complaints of losses incurred by ignorant buyers. We have to inform our people about the benefit of beginning small with animal traction and expand business as capital from yields increase.

That brings me to my discussion of a few aspects of information technology (IT) which I feel are important and, I hope, enlightening to you.

- The role of IT in agricultural development.
- How we, in the IT world reach rural communities.
- Support systems for policies - are any in place?
- Research and administration actions

I will end my discussion with the question of youth programmes and the challenges that needs to be addressed in order for us to succeed in making agriculture the foremost contributor to improvement of rural and agricultural social standards.

The role of IT in agricultural development

One can have all the tools in the world to fix a problem - but if you do not how to apply these correctly, the problem will remain. IT is a term applicable to the transfer of knowledge by using tools like radio, television, printed matter and of course, the fast increasing internet. Let me state it categorically that knowledge is more likely to be transferred successfully if it meets a need or fills a vacuum in a specific cause.

Who are we addressing

A typical role model who will need information on animal traction is a subsistence farmer who owns a few healthy cattle or donkeys and under utilises his/her land. In order to inform him or her of the advantages of animal traction, knowledge must be imparted in whatever communications means exist or can be implemented between the farmer and the outside world. These channels will be explained shortly. This modus operandi will be fit to address our role model, but what about South African developing farmers who are enticed by motorised traction as mentioned earlier? This is where IT really

faces its challenge. It calls for a mindset change, a paradigm shift.

We are thus faced with certain aim to use our IT skills to " bring the farmers back to reality". It is necessary to build their confidence up by explaining the step - by - step economics of simple beginnings and eventual growth to be able to purchase a tractor provided their business can afford it. Our aim should be to make the farmer aware of its ancestral relationship between man and animal. It was always a cultural pride item. The farmers must be informed of the versatility of the animals in their stock. These can be described as a readily available animal draught power, provider of manure, meat, milk, leather, horn and, in addition it brings forth its own offspring. IT channels must be used to the full to change perceptions towards animal draught power amongst farmer but also at government level to ensure productive economic growth. Officials wish for a fast solution by suggesting powered traction on community farms. The hidden facts and traps are enormous input costs where mostly no reserves exist, lack of maintenance skills, the fact that many drivers shorten the life span of a vehicle, and above all, interest and payments that are detrimental to a new farmer.

The demand by western countries for originally grown fresh produce provides a certain challenge to the developing farmers and are to be strongly recommended by media. A speaker at the recent NAFU AGM expressed the possibilities for farmers to get involved with tourism at a local level where they sell their produce to guest houses and local hotels and supermarkets. Another excellent idea to be put across by means of IT. If the background is advocated of a healthy product produced with the aid of animal draught power, organically grown free of smoke and smog from huge mechanical implements, think what boost it will give the animal traction industry in Africa! We in the media industry with such diverse technology to our disposal, can make a difference. Governments must be addressed to prioritise development of animal traction in all facets.

How to reach rural farmers with IT

The transfer of information to rural farmers poses a real problem for many Governments and organisations in their extension services. But is it really a problem? In most distant rural areas there has been forms of communication - if not, how did wars happen, how did we great population shifts take place, how does rural people today know about ancient agricultural?

Let us consider the following thoughts

The receiver of the message must be in need of knowledge. So - we are challenged to transfer information in such a way that it grips the recipients' attention. I read an interesting quip in a book called 'Agricultural Extension' by A.W. van den Ban that the great author, Ernest Hemingway once remarked "Your easy reading makes damn hard writing"! Now, that poses a real challenge to all information technologists in social uplifting - in and outside agriculture. They need to perceive the exact needs of their audience and answer to those in an appropriate manner. According to research done in Germany, four basic factors should be considered when addressing information needs in any language group. Firstly, as Hemingway aptly described, simple language. Secondly, information must be given in a structured and logic way. Thirdly, points must be brief and restricted to main issues. Lastly, maybe most important, the writing, or whatever means of Information Technology is applied, the subject must be stimulating.

However, before spreading a message via any medium, the criteria should threefold; address an exact goal, locate and solve an exact problem, address the right target group. Transferring information is the adoption of a social marketing strategy. Messages, which assist the farmer to save input costs, are of direct importance and make the information valuable. Drawing attention to simplistic ways of improving his or her agricultural skills encourages farmers to increase knowledge.

In rural terms, the three main conducts of IT are television, radio and various forms of print.

Television

Television is the latest high-tech application of IT to rural areas. Its visually incomparable in impact - that is if it is available, electricity is available and the viewer it at home. The basic problems encountered with TV is time limitations, incorrect scheduling of programmes because of economic constraints and presentation by people who rural communities cannot identify with. There's a belief that a wide gap exists between rural people in less industrialised countries and those writing or broadcasting for the media. Therefore rural communities might be disinclined to accept messages from the media even if they have ready access to them. Television is a quick way of contacting the masses - our role model at the beginning unfortunately misses the boat by a large percentage.

Rural radio

Rural radio is very popular today. Most rural households have radio. A vast number of languages

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are use to inform the listener on as many topics as time would allow. In the home however, like with TV, time scheduling is problematic, as is presentation. For people with many years of visual education by parents, it must be frustrating not to be able to see what radio presenter is trying to convey. Again, as with TV, once off the air, there's little hope of regaining the information.

Print media

Although not as fast as the two previous channels, the retention value of print is certainty a clear advantage. Without punting my own paper, I can say here that we receive enquiries and subscriptions on issues 4 - 6 months old. Print can be filed and read over and over and passed on. Even seen against verbal information at farmers days, people tend to forget details after a speech. Rural people are not accustomed to lengthy information talks. Obviously, when we discuss print media, the matter of literacy is raised. From leaders in extension internationally, it is understood that children who are educated in literacy school, read information material for their illiterate parents. Also, unemployed ex miners and industry workers who acquired literacy through their jobs, assist with the reading process.

Newspapers or magazines which target the rural farmer have the distinct edge over other channels of IT in that it grips attention and conveys its messages constructively and visually appealing. Regular features delivered over several make the paper popular and offers a source of reference. A newspaper or magazine conveys many messages of importance in one issue. As far as animal traction news are concerned, other subjects of equal importance can be read at time the farmer needs it; animal welfare, health, soil preparation, fertilisers, crop protection and marketing, to name a few. The farmers who make an effort to read their newspapers or magazines regularly, invest valuable time which they will benefit from in time to come.

Research and administration

The general public, with little agricultural knowledge, is often unaware of the enormous and varied field of research which must be implemented to assist developing nations. Researchers face challenges in the endeavours to provide specific information. These include seasonal variations in cropping conditions, different crops, land and labour productivity, livestock improvements, etc.

Research is an economic service as it requires resources to produce new technologies and institutional arrangements. Findings of researchers needs to be transferred promptly via available

channels to farmers to equip them in time with knowledge to increase yields in the current season or, in the case of livestock, prevent diseases.

Primarily there are three phases of research technology transfer :

- *Material transfer* - which are physical productive agricultural technologies

- *Design transfer* - local evaluation and testing if technologies already published overseas

- *Capacity transfer* - which results it attaining international status for local research projects.

All these action needs IT in one or another way. Farmers at base level should always be kept abreast of new trends - even if it is just retain the trust of a small farmer while help is on the way.

Support policies for IT in development of animal traction

It is with regret that I today have to report that, on the question of; "Are support policies for information to develop animal traction in South Africa in place?" my answer will be no. As far as I could establish, only Agricultural Research Councils' Engineering Institute are involved in disseminating information to farmers as they are actively researching low input cost methods for emerging farmers. None of the Provincial or National Departments of Agriculture has an active program on promoting animal traction.

Nufarmer & African Entrepreneur, being the only newspaper for emerging farmers, runs animal traction editorials in series over periods of time. A few manufacturers of animal drawn implements run their own campaigns from time to time.

It is such a pity that resource poor farmers are being led wrongly in assuming they do not have to start at the bottom. How can you let your kinsmen drop themselves into a situation of high inputs, high interest rates, shiny tractors and the rest when all we know the risks of farming - especially when one starts out in agriculture?

Youth educational programmes - their challenges

Human economic and cultural development is evolving processes of social learning. In South Africa we are faced with the problem of our youth being sceptic towards agriculture - and for good reason. So, what can we do to change their perceptions? Many children finish school annually only to find themselves unemployed. Certain questions must be looked into before we rush off to guide them back towards agriculture. Under what

circumstances would more knowledge and higher level of education become valuable to a farmer? In traditional agriculture, informal village communications and the parent to child apprentice system on basic was effective until recently. As more complex and productive new technologies and institutions that require a high level of verbal and numerical literacy become available to an agricultural area, primary schooling will become a worthwhile private and social investment for farm operations. Results will show that, as technology increases education of agricultural participants will become more profitable.

As agricultural development proceeds, farmer families will find that schooling provides literacy and arithmetic abilities that will improve youngsters and motivate them to continue to farm. Investments in primary schools to increase literacy and computational skills in Korean, Malaysian, and Thai schools proved that four years of primary school tuition resulted in a 9% increase in farm yields. Return on investment education in those countries ranged from an astounding 7 - 40%. However, care must be exercised - primary schools can alienate children from agriculture by influencing promising students to further their careers elsewhere. The reason being, that a low percentage of primary school's curriculum focuses on agriculture. Families and educators usually assume that secondary students will not return to agriculture.

This provides another challenge to IT as a whole - Agricultural media should focus on editorial content of value to youngsters to stir an interest in agriculture. Informal education - which is any organised or deliberate set of educational activities arranged outside a formal school - can be used positively to accelerate agricultural development. Children love animals. IT, through the use of various media, can be harnessed to teach children the versatility of the animal, love for the land and prospects of a lucrative own business. In doing so, we will create a new generation of earth loving farmers which Africa as a continent so dearly need.

Conclusion

IT can play a major role in the expansion of animal traction through:
- convincing Government to play an active role,
- renewing faith of the farmer in animal draught power,
- lobbying with provincial agricultural departments, NGO's and other extension operators to establish support systems for IT on this subject,
- stepping up research,
- getting animal draught power and related subjects into rural school curricula.