Incentivising Nigerian smallholder farmers to use a bio control to protect their maize.

Can we use market systems theory to predict the impact of a Pay-for-Results (PfR) prize competition? Looking at AgResults’ experience of incentivising Aflasafe™ uptake in Nigeria, the answer may be yes.

It’s been almost five years since AgResults launched the Nigeria Aflasafe™ Challenge Project. It is designed to spur private sector-led adoption among smallholder farmers of a bio control product called Aflasafe™ that inhibits aflatoxin growth in maize.

The project has been largely successful in incentivising uptake. In its fourth full growing season, over 25,000 farmers applied Aflasafe™ to over 73,000 metric tons (MT) of maize.

Yet how these results have built on previous seasons does not fit the project’s original expectations of scale. Upon further reflection, it’s clear that applying a market systems framework could have given us a more realistic theory of change for what has happened in Nigeria.

The initial project design developed for this project anticipated that the PfR prize mechanism, which offered a per ton incentive to all participants that aggregated AflasafeTM-treated maize, would lead to systems change through an increased farmer awareness of Aflasafe™. From there, other actors would “crowd in” to see how they too could benefit from the incentive.
The prediction was that once a certain threshold of treated maize was reached using a subsidised intervention such as a PfR prize, the public sector would respond by enforcing aflatoxin standards. This would create a positive feedback loop that would increase awareness and further adoption of the product. When we look back at how those expectations were derived, we find it would have been more accurate to apply a market systems framework to predict results.

Assumptions versus results: what a market systems change framework could have told us

In reviewing the results from all completed project seasons, we realised that initial assumptions for scale had not appeared. Uptake was slower than anticipated since farmers and aggregators wanted to test and convince themselves of the efficacy of Aflasafe. The per-farmer adoption of Aflasafe™ has been lower than projected. We decided to analyse the results within a framework more commonly used in conventional economic growth programmes — specifically a market systems change framework (see diagram) — to see if that could have better predicted the actual results.

The results to date have been somewhat encouraging in showing a market leaning towards systemic change. The graphic shows the Adopt-Adapt-Expand-Respond (AAER) framework, which when applied ex-post turns out to be a good predictor of what has happened in Nigeria. Over four years, we have seen participants largely respond in ways that the framework would have predicted had we used it to inform the project design and its outputs. Here are some of those ways:

1. Early competitors adopted a radically new mechanism but were cautious and deliberate in testing the new product over the first two years.
2. Some of those competitors adapted business models and have taken the product to scale to take advantage of the project incentive.
3. Each year, additional firms have joined after seeing the initial success of others, expanding the reach of the project.
4. This adaptation and expansion has led to tens of thousands of farmers participating, and hundreds of thousands of tons of Aflasafe™-treated maize produced. Some competitors are receiving a premium for the maize, while
others are actively lobbying the government to institute stronger aflatoxin control standards that would further increase demand for the product.

Conducting this review has helped us understand some of the nuances that also drove differences in scale between design assumptions and actual results. One major difference is in the number of initial farmers and output per farmer. The initial years were largely an exercise in proving the product’s efficacy and its use before competitors and farmers truly believed in it. Therefore, the output was quite low on a per-farmer basis until the third year of the project. This is an important lesson for us in being able to better plan for a prize incentive’s potential uptake and reach.

Another assumption in the initial design - and key to achieving systemic change - is that the private sector response and creation of a premium product in treated maize would lead to a public sector response in the form of increased aflatoxin standard enforcement. Already, some competitors have begun to lobby their regional governor to enforce aflatoxin standards. Perhaps more importantly, the project has proven that Aflasafe™ can work on a wide scale and can lead to market premiums for treated maize. This development has fueled new funding for broader commercialization of Aflasafe™ in Nigeria.

Aligning PfR prize competition design with development tools and approaches

Our ex-post analysis of the results in Nigeria hints that pay-for-results prize competitions can be designed in part using similar market system tools and frameworks that are normally used in development programming. AgResults is currently designing new prize competitions, and we are actively testing some of these project design tools to see what works. If we obtain results that validate our findings above, we will be able to update the prize competition design process to be more accessible to the development community.