

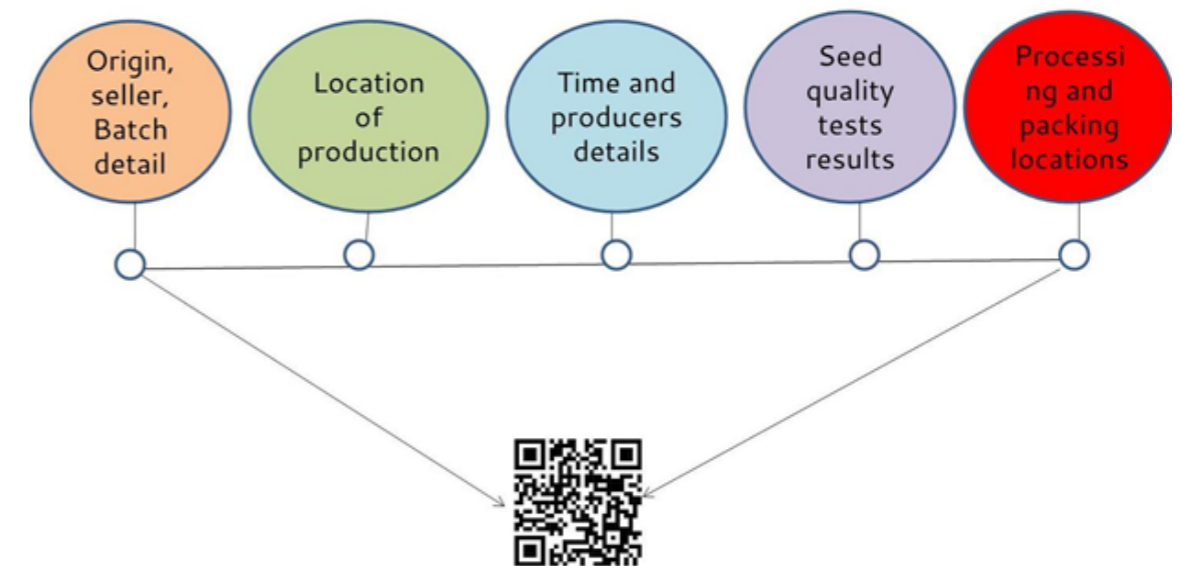
DIGITALIZATION IN SEED SECTOR- CRUCIAL NECESSITY

Axay Bhuker and Surbhi
CCS Haryana Agricultural University, Hisar

Seed is a vital and basic input in agriculture for enhancing production as the response of other inputs such as irrigations, fertilizers and pesticides also depends upon the quality of seed used. It has been observed from study that quality seed alone can enhance about 15 to 20 per cent production depending upon the crop and could be up to 45 per cent when coupled with efficient management of other inputs. The quality of the seed therefore can't be compromised and hence, it is essential to maintain its purity and quality during seed production chain i.e. Breeder, foundation and certified seed. In order to provide quality seeds to farmers, Indian government had framed and brought out various legislations related to seed. The main purpose of these seed laws enforcement is to regulate the seed quality sold to farmers. Seed quality is mainly regulated through Seed act 1966, Seed (control) order 1983, Plant Quarantine Order, 2003 and Protection of Plant Varieties and Farmers Rights Act, 2001 (PPV & FR act) in India. Although technology in agriculture is continuously evolving but still this sector is least digitalized. Digitization is one such solution that holds immense potential in developing traceability in the seed industry. There is no procedure for ensuring genuineness and quality of seed offered for sell. Due to use of poor quality

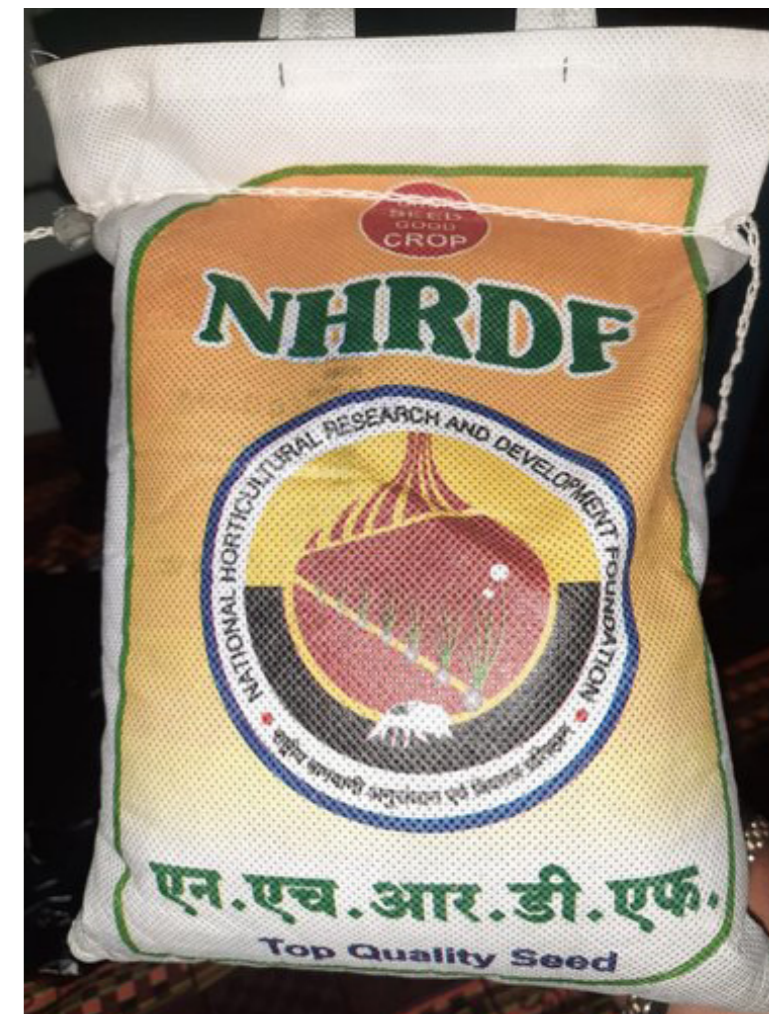
seed sold by some companies, crop of many farmers damaged which results in huge financial losses. State agriculture department receives thousands of complaints from farmers regarding germination and quality of seed. Quality assurance is facing new challenges with the increase of fake seeds in the market. Low and spurious quality seeds cannot be traced directly and seed companies are not sure of where the seed and produce are coming from. The illegal seeds are commonly sold under the name of prominent companies, putting at risk the productivity of crops and the livelihoods of farmers who lack an effective mechanism to identify them as such. In India, labelling of seed is compulsory and Quick Response (QR) Coded on labels/tags of seed bags may help in controlling such problems. Traceability through barcode/QR (quick response) code may play a crucial role for the seed industries as there will be complete proof evidence of the quality. Barcode is a rectangular or square machine-readable label carrying details about the item to which it is attached that can be read by a scanner while QR (Quick Response) code is a type of matrix barcode. Upon scanning the QR code, the farmers can assess and learn about the quality and genuineness of seeds. As soon as QR code is scanned the details about the seeds such as place of production, time

and producers details, processing and packing locations, seed quality tests results, tests date and expiry details displayed on the screen. With the help of QR coding system farmers can check the genuineness of seed production, quality of seed can be verified, seed generation chain in seed production, or multiplication can be established.



Scan QR code to get complete traceability of the seed

More importantly, counterfeiting or misuse of seed tags and misbranding of seeds can be avoided through this software. The QR Codes can be printed and displayed anywhere on the containers or on labels. It is farmer-friendly technology that will protect farmers from unscrupulous traders selling fake or poor quality seeds. Not only farmers but seed producers will also be benefitted with this technology. After checking all the details, farmers will be confident enough to purchase QR coded seed bags compared to the conventional ones, which lack these tags. It will be highly helpful in exporting the seeds as well. It improves the credibility of seed industry and value addition for seeds in the market and farmers can purchase genuine seeds. For law enforcement authorities too the software helps in different ways as they can check on-spot information on seed genuineness and initiate stringent action against offenders. Although presently using QR code on seed containers is voluntary and some of the private seed companies are already using QR codes for their products. But government is planning for execution all over the country.



Telangana is the first state in the country that recently started QR code which would include information on who, when and where the seed is produced, date of expiry, when and where the seed is processed and packaged. Telangana has made it mandatory for Telangana seed organizations to implement the QR Codes and Seed Traceability even before other States. Telangana is considered the “Seed Bowl” of the country that fulfils about 60 per cent of country’s seed requirement, besides meeting its own requirement. Uttar Pradesh and Orissa have also implemented QR code and government is planning to implement this QR system all over the country to ensure quality and to track the spurious seed in seed production chain.



BENEFITS:

- End to end visibility of seeds throughout their lifecycle
- Identification of a seed source, variety and quality by backward linkage (traceability) till its origin
- Automation of manual processes of indent submission, allocation, allotment, lifting etc.for breeder seeds
- Real time monitoring of demand, allocation and supply of breeder seeds
- Automation of seed certification system involving registration, inspection, testing, certificate issuance
- Reduced paper work, easy and effective inspection by use of tablet based application for inspection
- Monitoring of seed inventory and sale to farmers
- Automated registration of seed dealers, application renewal and license issuance
- Dashboard based monitoring and MIS for complete track of all activities in seed lifecycle