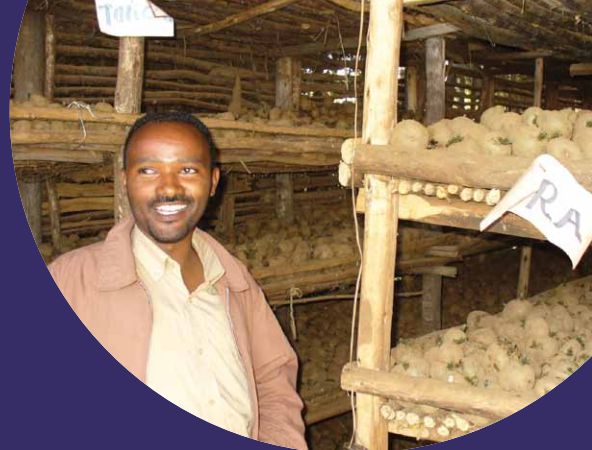


ISSD Africa

Synthesis paper



Public variety use agreements

Background

What is the issue?

The public sector in Africa is the main producer and hence owner of varieties; common exceptions are vegetable varieties, hybrid varieties and export commodities (see national and regional variety catalogues). Its mandate is to ensure that farmers have access to these varieties by making quality seed available. Seed production is almost exclusively carried out by private entrepreneurs (large- and small-scale companies and seed producer cooperatives, etc.). Seed enterprises would prefer to use public varieties as exclusively as possible for marketing reasons, while the public sector would like to distribute its public good varieties to many seed enterprises. These diverging interests of the public and private sectors require agreements on how public varieties can be accessed (as early generation seed) and used (with different levels of exclusivity).

New plant variety protection and/or public-private partnership (PPP) agreements are needed because of the continuing privatization of seed value chain functions. In practice, the private seed producers acquire public varieties for seed production through different arrangements with the public producers of these varieties. At the same time, seed producers, particularly (inter-) national seed companies, are interested in some sort of exclusivity (or transfer of ownership) and so they seek to treat the seed of new varieties as a private good. The public breeders and their programmes and organizations are interested in getting these varieties out to farmers, but also like to be compensated for their breeding efforts. Consequently, depending on the legislation that is in place, this often has the potential to result in conflict with the public good nature of these varieties.

The public sector owners of varieties (international/national research organizations, universities, etc.) can license the use of the varieties to private seed producers, or can transfer the ownership of the varieties to other parties/entities. In the latter case, the public varieties (public goods) are transferred to the private sector and become private goods, i.e. 'transfer of ownership'. However, in most cases different forms of licensing agreements are used. These are referred to as material transfer agreements (MTAs).¹

The background to this potential tension between public and private sector interests of access to publicly bred and released varieties is further influenced by a number of factors: national seed legislation, such as the existence of plant breeders' rights (also called plant variety protection); recognition of different kinds of seed systems and hence seed producers, or rights of farmers to produce and sell/exchange seed of released public varieties; and release of varieties developed using germplasm from the CGIAR centres, by national research organizations in the Regional Economic Communities, e.g. see the variety catalogues emerging from the Economic Community of West African States (ECOWAS), the Southern African Development Community (SADC), and the Common Market for Eastern and Southern Africa (COMESA). The official recognition of all kinds of private seed sector roles, such as in early generation seed (EGS) production, quality control, and payment of royalties for use of public varieties, strongly influences the relationship between the public and private sector in the seed value chains.

The existence of different seed systems and the role of private initiatives further determines the possible agreements between public and private sector. Some of the issues that are coming to light for the different seed systems and seed value chains are as follows. In formal seed systems (e.g. for hybrid crops such as maize, sunflower, brewing sorghum),

¹ Material transfer agreements (MTAs) are legal instruments that define terms for the transfer of tangible biological materials between or among two or more parties. MTAs are bailments that transfer possession but not title: the party who transfers the materials retains full ownership; the party who receives the materials holds them in trust (Bennett, Streitz and Gacel, 2007).

the transfer of ownership of maize parental lines from the public sector to private companies is taking place. This raises questions on exclusivity, payments of royalties, and transfer of ownership. In intermediate seed systems, public research organizations actively involve small-scale seed producers in multiplying public varieties for the production of quality declared seed (QDS). The markets for these are local and small and hence exclusive use contracts are not an option for the public sector. How can all this work in the informal seed systems? Contracts and informal seed systems do not go hand in hand. In practice, a private company can be contracted to supply seed to seed producers in farmer and community-based (FCB) seed systems, or all kinds of informal/verbal arrangements can be used.

Focus of this study

In 2015, a background paper was developed based on a desk study on the different types of variety use agreements and examples (Minneboo, 2015). It contributed to bringing some order to the wide range of variety use agreements and issues. The main findings are summarized below and will contribute to the focus of the action learning projects.

Many different types of formal/legal, informal verbal/gentlemen's agreements are used in accessing public varieties. Agreements on access to varieties in the seed value chains vary, due to type of stakeholders involved (between international and national research organizations, or between research organizations and seed producers); type

of biological material involved (genetic materials, breeder or foundation seed); the content (terms and conditions, objectives); and level of formality (legal contracts, informal arrangements). Issues that are dealt with in such contractual agreements can be related to the supply of breeder and/or foundation seed over time, exclusivity of variety use, feedback arrangements, costs, royalties and fees, and the transfer of intellectual property rights (variety ownership) between public and private sector.

In order to regulate the international public good nature of the supranational CGIAR genebanks, which fall under the multilateral system of access and benefit sharing of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), and to facilitate access to plant genetic resources for agriculture, the Standard Material Transfer Agreement² (SMTA) was introduced. The SMTA is a mechanism of the ITPGRFA for facilitating access to materials held in genebank collections³. It is used between actors in the variety pre-release stage of the seed value chains⁴.

Material transfer agreements (MTAs) have elements concerning the transfer of ownership, as in breeding material used for developing varieties, or pre-breeding material such as parental lines for hybrid variety production, but they can also serve as agreements for licensing out released varieties to private companies. MTAs may be used between pre-breeding programmes like the maize breeding programmes of the International Maize and Wheat Improvement Center (CIMMYT), and private seed companies for the

Table 1. Distinguishing factors for seed value chain agreements

Distinguishing factor	Diversity/agreements
Seed value chain actors involved	<ul style="list-style-type: none"> • Between public pre-breeders and private breeders, using a standard material transfer agreement (SMTA) • Between public breeders (e.g. CGIAR centres and programmes, and national research organizations) and seed producers (private sector), using MTAs • Between value chain actors (farmers and processors) and breeders, using breeding contracts for the development of required varieties
Objective	<ul style="list-style-type: none"> • Transfer of ownership of the variety from the public to the private sector (often pre-release) • Transfer of biological material but not ownership • Protection of intellectual property as in exclusive contracts for payments of royalties to research organizations • Dissemination of released varieties and germplasm material (local varieties)
Crop and type of variety	<ul style="list-style-type: none"> • Transfer of parental lines (and hence ownership of the hybrid variety) from the public to the private sector • (Conditional) transfer of breeder seed of open-pollinated varieties (OPVs)
Nature of agreements	<ul style="list-style-type: none"> • Legal/formal agreements, as in the Standard Material Transfer Agreement (SMTA) or MTAs, and other types of contracts with different levels of exclusive use and "royalty" arrangements • Verbal/informal/gentlemen's agreements between plant breeders and seed producers. This can take the form of undefined arrangements between individual plant breeders and seed companies, or it can be an accepted strategy of public research institutes to hand out breeder seed to local seed producers to multiply for the production of foundation seed, or seed and anything in-between • The in-between could include formal contracts that don't qualify as MTAs

² The Standard Material Transfer Agreement (SMTA) is a private contract with standard terms and conditions that ensures that the relevant provisions of the ITPGRFA are followed by individual providers and recipients of plant genetic material.

³ It also means that, whether or not there are national laws protecting and promoting farmers' rights in the countries where they work, CGIAR centres should, where possible, seek to work in ways that promote: the "protection of traditional knowledge relevant to PGRFA"; farmers' "right to equitably participate in sharing benefits arising from the utilization of PGRFA"; farmers' "right to participate in making decisions, at national level, on matters related to the conservation and sustainable use of PGRFA"; and farmers' right to "save, use exchange and sell farm-saved seed/propagating material, subject to national law and as appropriate" (as stipulated by Article 9 of the ITPGRFA).

⁴ See <https://mils.planttreaty.org/itt/>, accessed 3 February 2017.



Seed potato production demonstration in Kayanza, Burundi

transfer of genetic material (parental lines). These are also subject to the ITPGRFA, meaning that conditions must be met, such as registration of the variety within three years in at least one country, or within five years in a number of specified countries (MacRobert, 2009). Special forms of MTAs are the licensing agreements that aim to transfer the full use of the varieties (released) from the public sector to private companies in order to generate business, while retaining rights over the protected varieties for the public owners to secure income through royalties.

Other agreements exist between other actors in the seed value chain, such as contracts between seed users – or other produce value chain actors – and plant breeders for the development of certain varieties; these are plant breeder contracts. Contracts exist between seed producers and agro-dealers for the marketing and distribution of seed of superior varieties; between seed companies and outgrowers for seed multiplication; and between public research organizations and seed producers for the production of foundation seed within the context of promoting EGS. MTAs are between public research organizations, such as CGIAR centres and national agricultural research institutes (NARIs), and seed producers (national and international seed companies, local seed businesses, FCB seed systems).

The CGIAR system, which provides a model for all public research, developed principles for some level of “privatization” of public goods with the objective of reaching more farmers with the released genetic material, leading to genetic gain at farm level. The principles relate to the following four categories and corresponding agreements (CGIAR, 2012a; 2012b):

- (i) Restricted use agreements – these are about accessing and using third party intellectual assets (e.g. from private seed companies), which can be essential for the CGIAR research programmes. When providing such access and use, third parties may sometimes impose downstream restrictions on the global accessibility of the resulting intellectual assets (such as exclusivity, confidentiality, etc.).
- (ii) Limited exclusivity agreements⁵ – CGIAR centres may grant limited exclusivity for the commercialization of their intellectual assets under certain conditions. These conditions relate to geographic scope (territorial exclusivity), time limits (duration of exclusivity), and field of use (exclusivity for emergency situations, for example); all with the objective of reaching the target group.
- (iii) Agreements for the registration of rights – these allow patent protection in order to develop a product for the intended target group, and, in exceptional cases only, to improve the material or to enhance the scale or scope of impact in the target group.
- (iv) Fee-based access agreements – these include charging fees (royalties) for providing access to intellectual assets. These agreements are not for the materials in the CGIAR genebanks as they fall under the multilateral system of the ITPGRFA and are transferred using the SMTA.

This study focuses on agreements between public plant breeders/research organizations and private seed producers, and hence concentrates on public-private partnership arrangements involving the transfer of released varieties. These are largely different kinds (in terms of exclusivity, legality, formality, financially, etc.) of licensing agreements.

⁵ UPOV: A license agreement could comprise almost all rights of the holder, or it can be limited to certain acts and/or territories. Frequently, terms in license agreements relate to duration of the agreement, territorial limitations, levels of royalties to be paid, number of plants to be produced, granting of sub-licenses, policing, actions for infringements and auditing, assignment, essential derived varieties (EDV), applicable law, settlement of disputes and termination of the contract.

Action learning method

Research questions

The following research question was addressed through action learning projects and desk studies: Which variety use agreements (and other arrangements) in the seed value chain improve access to new varieties for farmers, and private and other seed producers, in different seed systems and seed value chains?

Two action learning projects (potato variety use agreements in Kenya and Uganda) were developed and the general research question was further elaborated with the following sub-research questions:

- What are examples of different types of agreements that exist between the public research sector and private seed producers?
- Is the use of agreements linked to the existing national seed policy?
- What are the main hurdles that need to be overcome to promote the use of these agreements on a wider and more general scale?
- Do variety use agreements exist between the public research sector and seed producers of different seed systems, such as for informal, intermediate and formal seed systems, producing truthfully labelled, and quality declared or certified seed?
- What is the evidence that the agreements have contributed to more effective access to public varieties?

The thematic working group on access to varieties in the public domain identified two action learning projects on the role of variety use agreements in access to varieties: one implemented by the International Potato Center (CIP, in Kenya), and the other implemented by the National Agricultural Research Organization of Uganda; both cases concern access to public seed potato varieties.

The background paper on variety use agreements mentioned above offered an overview of experiences on different types of variety licensing and transfer agreements (Minneboo, 2015). It also provided input and guidance to the two action learning projects.

The action learning project of CIP in Kenya employed several techniques to gather information for this study (Lung'aho and Schulte-Geldermann, 2016). These included an extensive review of relevant literature from published works and grey literature; semi-structured discussions with key informants and actors in the potato seed sector; and case studies of seed potato initiatives that have been implemented in Kenya. The study was conducted between June and November 2015. The specific objectives were to document and analyse existing variety use agreements/



Photo: Ivan Rwomushana, ICIPE

Seed potato field inspection in Kenya

arrangements, and to identify the key lessons learned in using those variety use agreements/arrangements in seed potato value chains. There are many actors and institutions in the potato seed value chain, including public and private organizations, community-based organizations (CBOs), farmers' groups, farmers' organizations, individual farmers, and various donors. There are no exclusive use agreements for public potato varieties. The agreements/arrangements for potato are mainly between public research and other public sector organizations, private sector organizations, CBOs, and individual farmers; and amongst multiple value chain actors.

The action learning project of the Uganda National Seed Potato Producers Association (UNSPPA) and NARO included a desk study on existing varieties and other genetic material access and use agreements in Uganda, followed by the formulation of detailed questions/checklist to be used for getting feedback from seed sector (potato) stakeholders on public variety access agreements. Interviews were conducted on how potato variety use agreements and models function for different stakeholders. Experiences and feedback on these agreements were documented, and a paper was prepared on variety use agreements in Uganda, with special emphasis on the role of UNSPPA in potato variety use agreements (Tindimubona et al., 2016).

In Nairobi, in December 2015, the complete thematic working group, country focal persons and all the action learning project coordinators came together for a three-day discussion on the preliminary results of the action learning projects and the background paper. This resulted in a synthesis of findings and lessons learned on the role of, and experiences with, variety use agreements, which are outlined below.

The above-mentioned synthesis was discussed and analysed in multi-stakeholder seed sector national workshops held in 2016 (in Zambia, Kenya, Tanzania, Uganda, and Mali), and feedback was recorded. This was equally used for the following synthesis of results and lessons learned.

Results

Access to potato variety agreements in Kenya

Limited exclusivity agreements are those through which CGIAR centres (and national and regional research organizations), bound by the CGIAR Principles on the Management of Intellectual Assets, agree to limited exclusivity for the commercialization of their public varieties. Although only used on an experimental basis in Kenya, such agreements may be permitted under the following conditions: if exclusivity is necessary for the further improvement of potato varieties, or to enhance the scale or scope of impact on target beneficiaries of the new potato varieties; if exclusivity is as limited as possible in duration, territory, and/or field of use; and if the agreements provide that the varieties remain available in all regions/countries (in the case of CIP) for non-commercial research conducted by public sector organizations and, in the event of a national or regional food security emergency, for the duration of the emergency (in case they are bred by CIP).

The absence of exclusive use agreements for public potato varieties is probably caused by the fact that no seed potato companies have come forth to show interest in getting exclusivity. The consequence of not having these agreements is that commercialization of the variety may not be so widespread, and varieties may not reach as many farmers as would be desirable. The public system often does not have the necessary resources (funds and skills) to invest in marketing and promotional strategies for varieties.

CIP is interested in claiming ownership rights, and granting limited exclusive rights over potato varieties to NARIs. Materials being transferred by CIP to a NARI under the SMTA are plant genetic resources for food and agriculture under development (PGRFAuD) and relate to material purely bred by CIP. Thus, CIP owns this material. The NARI should share all information from its trials with CIP, and CIP should grant the NARI a limited exclusive right over the material and derived products (i.e. the promising variety selected). This allows the NARI to (i) register the variety in the NARI's country only, in CIP's name; and (ii) enter into licensing agreements with private seed companies to commercialize the variety in Kenya, to ensure open access to any bona fide local seed company. Exclusive rights between CIP and the NARI are agreed on for a limited period. The NARI may only grant licenses to seed companies that hold a valid seed merchant's license and the NARI must notify CIP once it has successfully registered the variety in Kenya, and issued a license to a local seed company. The NARI must also pass on the sales data it has received from the seed company to CIP.

The licensing terms between the NARI and private seed companies are based on the NARI's standard form of license, and include the following: the license shall be non-exclusive in relation to purchasing, producing and/or selling the variety; the license can be revoked if the seed company has not been granted a renewal of its seed merchant license; the license will be limited to the country where the NARI is based (the license will also explicitly prohibit any sub-licensing without CIP's express, written consent); royalty fees charged shall be capped at a percentage to be agreed between CIP and NARI; the private seed company must make an annual payment of 0.77 % of the sales of seed potatoes to the CGIAR governing body; the private seed company must report the previous year's annual sales of the product to NARI on 31 January for the duration of the license; the NARI, and any subsequent license holder, will take no actions against smallholders for farm-saved seed and no royalties shall be collected; and private seed companies selling the variety shall make the seed available in pack sizes of 10 kg or less, for at least 10% of the seed produced by them.

In general, the existing contracts/agreements/arrangements enhanced access to quality seed of improved varieties in the formal, semi-formal, and informal seed systems. Linking multiple actors in the seed value chain proved crucial to the success of farmer seed potato enterprises, while the performance of EGS multipliers (NARIs) is critical to the proper functioning of the seed potato value chain. Seed production initiatives that offered benefits or services to the seed growers appeared to be more successful. Models that invested in the development of technical and managerial capacities of individual seed producers or organizations, and that were able to build functional business linkages with service providers, were more successful. Public research systems have released over 30 varieties requiring innovative multiplication techniques and arrangements to reach all farmers with these varieties. Small seed enterprises (e.g. individual farmers and CBOs) in the intermediate seed system can strengthen themselves and benefit from economies of scale by joining together in associations, and protecting the market from counterfeit seed potatoes. However, networks of small-scale seed growers are largely non-existent. The informal seed system can rapidly diffuse varieties that farmers consider important even in the absence of interventions from the formal seed system. Varieties that have been successfully diffused by the informal seed system include seed potato varieties Shangi, Nyayo, Tana Kimande, and Thima Thuti. The public research system partnered with farmers to improve the quality of farm-saved seed through training in positive selection and small seed plot techniques. The breeding of public varieties is not necessarily market oriented, nor do variety selection and evaluation programmes always reflect producer or market needs.

The main findings on licensing agreements for access to public varieties were that farmers have a lot of confidence in government-related organizations, such as agricultural training centres (ATCs), research centres, or the Agricultural Development Cooperation (ADC), as providers of good quality seed. Demand-side intermediaries (e.g. non-governmental organizations) play a role in identifying and “procuring” technologies for application and use in business contexts. Arrangements brokered in the intermediate seed system, which promote the packaging of seed in small packs (5–10 kg), have been effective in improving seed access for smallholder farmers. Agreements between various actors in the seed value chain need to be better defined, with clear arbitration clauses.

Direct agreements between breeders of public varieties, CBOs and other decentralized seed multipliers seemed to improve access to quality seed of new varieties. Institutionalization of such arrangements will go a long way in improving access to public varieties for farmers. There is a need to engage policymakers to recognize the system and

facilitate the development of appropriate quality standards for the system. Farmers source/access seed potatoes of new varieties from formal, intermediate, and informal seed systems, but the informal system dominates (over 90%). The mobile-based seed potato portal managed by the National Potato Council of Kenya⁶ is an innovative approach to link seed producers to farmers and further enhance access to preferred varieties. Partnerships in basic seed production, the introduction of varieties and production technologies (aeroponics and hydroponic systems), and the accelerated diffusion of technologies, all increased farmers’ access to new varieties.

Access to potato variety agreements in Uganda

UNSPPA is a farmers’ organization that works effectively, based on trust, with other stakeholders, such as research organizations. Kachwekano Zonal Agricultural Research and Development Institute (KAZARDI) of NARO makes EGS potatoes available to UNSPPA without any formal written agreement, and UNSPPA multiplies the material for end

Small seed plot technique for seed potato production in Kayanza, Burundi



Photo: Ivan Rwomushana, ICIPE

⁶ See <http://www.npck.org>.

use. The arrangements for access to such potato-growing materials are verbal and informal. This study focuses on the verbal agreements that UNSPPA has with research organizations (KAZARDI) for the supply of varieties, foundation seed and plantlets. The study also examines verbal agreements with other development partners, such as CIP through KAZARDI.

Verbal agreements are the most common type of variety access agreement used between organizations supplying released varieties, seed companies and farmer seed producers' organizations, and other seed producer groups. Verbal agreements exist between KAZARDI and UNSPPA or other seed potato producers, to ensure access to quality seed potato of new seed potato varieties. The KAZARDI model is to ensure unhindered access to quality seed for whichever seed multiplier needs the variety. Seed is accessed seasonally or as available, according to projections of demand. In 2015, a memorandum of understanding (MoU) was signed between UNSPPA and KAZARDI on access, multiplication and distribution of quality seed potatoes, albeit not as stringent on provisions as would be expected for an MTA. Such an MoU simply defines how the two organizations relate to each other in terms of enhancing farmers' access to quality seed, with no binding commitments by either party. The verbal agreements on access to seed potato varieties are royalty free, with no costs involved in access to new varieties of seed potato. The average duration of the MoU is five years, for the supply of an agreed number of varieties. The agreements also ensure that the beneficiary farmer seed-producing groups have a ready market for their seed potatoes, and access to technical backstopping and seed potato quality control services.

The main obstacles encountered in seed potato trade are inadequate funds to purchase inputs, lease additional land, and establish irrigation facilities to overcome unreliable rainfall; poor services from the seed regulatory authority; and insufficient breeder seed. The farmers' associations involved in the MoU promoted the establishment of the Village Savings and Loan Association (VSLA). Through such initiatives, beneficiaries are taught how to save, and also how to improve the standards of living, since these farmers are able to get credit from the VSLA that will allow them to engage in agriculture on a wider scale. The KAZARDI/UNSPPA MoU also creates a ready and premium market for clean seed potato varieties. In the present setting, the MoU plays a very important role in ensuring that fields are inspected in order to have quality seed potatoes. Among the challenges are the limited quantities of breeder seed made available by KAZARDI, reliance on rain-fed farming, insufficient working capital, scarce access to processing facilities, and the limited capacity of the seed inspectorate services of the government to provide timely seed inspection services.

Lessons learned

The main findings, as presented, were analysed and synthesized by the extended thematic working group, and translated into some key clusters of lessons learned on the process involved in developing agreements; the role of different types of agreements; and the content of the agreements, including the exclusivity and financial paragraphs.

Development of agreements. Variety use agreements need to be brokered. Several projects/programmes, such as the West African Seed Programme (WASP) and the Syngenta Foundation for Sustainable Agriculture (SFSA), have contributed to enhancing the relationship between the public providers of varieties and the private producers of seed of these varieties. This brokering can also be cross-border (e.g. in the Regional Economic Communities, by SFSA and WASP) and supported by public funds (e.g. WASP) or private foundations (e.g. SFSA). It is worth noting that the agreements are potentially mutually beneficial, but cannot easily (pre-) finance brokering services.

The initial building of trust and understanding can be facilitated by multi-stakeholder seed platforms, which also involve policymakers. These were found to be important in providing guidelines for public-private partnerships in general, and the transfer of public goods to the private sector in particular. The policy context is also important for at least the acceptance of agreements between the public sector and intermediate and informal seed producers; for example, the pioneering agreements of the Kenya Agricultural and Livestock Research Organization (KALRO) with seed-producing cooperatives. An important element of the process of developing agreements is the timing of the actions, e.g. in the supply of EGS and marketing of the seed produced.

Types of agreements. Most variety agreements do not aim at the transfer of ownership, but have two main objectives that may be in conflict with each other. Agreements can aim to promote the variety through contracts with private seed producers, in order to commercialize the variety to reach the target group. This can be a non-exclusive contract (i.e. several seed producers can be involved) or exclusive contract for at least a certain duration of time or for a specific location. Agreements can also strive towards making sure that earnings from the production of EGS of a public variety, or royalties for the use of that variety, benefit the owner of the variety (i.e. public research). The earnings can also just be a one-off administration fee (e.g. in Zambia).

The above-mentioned agreements apply very much to the formal seed system (either certified seed production, quality declared, guaranteed or standard seed system). However, in many cases, as illustrated in the seed potato cases

in Kenya and Uganda, informal or intermediate, written or verbal agreements are established between public variety providers and community-based seed producers, as well as local seed businesses. Such agreements are instrumental for enhancing access to varieties for commodities that are not fully commercial or in which seed companies are not interested for a variety of reasons. Sometimes the research seed production license is used to “legitimize” the CBO seed production (e.g. KALRO’s license used by smallholders in Kenya to produce seed potatoes). In Zambia, quality declared seed (QDS) production by CBOs for new bean and groundnut varieties is being developed through variety use and EGS supply agreements with the Zambian Agricultural Research Institute (ZARI).

Several risks are associated with the informal nature of agreements with CBOs, as there might be limited commitment from either side. Often, they rely very much on the personalities involved from the research organizations and CBOs, resulting in problems if one of the individuals involved quits or abuses the situation. The agreements are also needed for the use of cleaned-up local varieties, as here it is not clear who owns the variety, and how the benefit sharing is organized.

Content of the agreements. Variety use agreements are between two parties who both have an interest and hence incentives for each. The interests and commitments must be clear in the agreement (e.g. the multiplication of public released varieties and related business proposition). Both parties need to have a long-term commitment, not just one or two years. Arrangements for quality control (maintenance breeding, seed quality control) have to be part of the agreement. The agreement can take care of risks, in terms of providing a mitigation strategy and developing a risk mitigation fund. The agreement will need a clause on arbitration, as well as special paragraphs on exclusivity, finance and incentives.

Exclusivity clauses in variety agreements. Public varieties are made available to seed producers as a public good mainly through non-exclusive contracts. At the same time, while plant breeders’ rights bills have generally not yet been implemented, public plant variety protection certainly has not. As illustrated, CIP and CIMMYT and other CGIAR centres are testing and working on exclusive contract models with NARIs and private companies. NARO in Uganda is doing the same for certain commodities, such as hybrid maize, potato and hybrid sunflower.

The trend is towards exclusivity, although this is not yet very common. Non-exclusive agreements are under threat (e.g. in Zambia), as the private sector increasingly asks for exclusive access to released public varieties (or pre-

released parental lines), while responding to the need of research for more financial benefits. On the one hand, the private sector wants exclusive agreements for multiplying the released public varieties, while on the other hand exclusive contracts can threaten access to varieties for small-scale seed producers and ultimately small-scale farmers. This balancing act between producing a public good and exclusivity, and the potential (or perceived) threat to seed access for smallholders, could erupt into a political problem.

The financial paragraph of agreements. Variety use agreements can be limited to one variety but can also be for multiple varieties. Seed producers would require a sustainable supply of quality foundation seed for demand-responsive seed production, while the variety providers would need to maintain the varieties. How such a system is sustained would need to be part of the agreement. In cases of exclusivity or plant variety protection, or in general in cases of variety use for commercial purposes, royalties must be paid for the use of the variety (in one form or another) benefiting the breeding programmes and/or the breeder him/or herself. In such cases, for the sake of transparency, it would be good to clarify how these royalties would benefit the corresponding breeding programme. Depending on national legislation, agreements should be clear on breeders’ rights, farmers’ rights and the use of patents in relation to international conventions, such as the International Union for the Protection of New Varieties of Plants (UPOV), the ITPGRFA, the African Regional Intellectual Property Organization (ARIPO), the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), and the African Intellectual Property Organization (OAPI). Agreements should also be clear about the real costs of foundation seed in order to cover at least costs of production.

Conclusions

The relationship between public suppliers of varieties – mostly NARIs but increasingly also international research programmes of the Regional Economic Communities (RECs), and private seed producers (international, national and local seed businesses and communities) – is mainly through access to breeder seed and foundation seed. In the absence of sustainable public funding for research, breeders and their organizations also depend on the sale of this breeder and foundation seed, as the practice of charging royalties for the use of their released varieties is still quite rare. At the same time, there is enormous pressure from public funding (notably also international donors) to deploy released varieties at smallholder farm level. Breeders and research programmes are increasingly

entering into agreements with seed producers for the commercialization of their varieties, so that their varieties can reach farmers and they can raise funds for use in their programmes or as incentives. In the absence of clear guidelines this can lead to a variety of arrangements, which will not always be very transparent and accountable. However, an element of flexibility and autonomy needs to be maintained. Flexibility guidelines have to take into account the variety of seed systems and seed value chains, and the diversity of seed-producing entrepreneurs. Some financial autonomy of breeding programmes is required as the possible revenue of the agreements needs to flow into the breeding programmes and not into the central government coffers.

The development of variety use agreements requires **joint planning** between public research and private seed producers. Multi-stakeholder workshops or platforms are good opportunities to identify prospective partnerships that could lead to actual agreements. The public sector (or related projects and programmes) has a role to play in brokering arrangements between variety suppliers and variety users, which can be at national or local level depending on crops and type of seed. Brokering services need to be supported for smaller seed companies and local seed businesses in particular. Examples of workshops and platforms are the partnership workshops organized in different countries by WASP. In Zimbabwe, the Agricultural Coordination Working Group is facilitated by the Food and Agriculture Organization of the United Nations (FAO), for coordinating agreements on access to varieties in relief situations. In Uganda, zonal seed stakeholder platforms have been established. In general, national seed committees and national seed trade associations (NSTAs) have a role to play in the development of variety use agreements; in some countries, NSTAs participate in the brokering of agreements at least for the formal seed system. Joint planning can result in public-private partnerships, several of which have been presented in the seed potato cases for Kenya and Uganda.

Exclusive variety use agreements (time, geography or use) aim at improving variety deployment at farm level at the expense of relinquishing the public good nature of the released varieties. The agreements need to be designed with set targets in such a way that this can be monitored. Exclusive variety use contracts also require provisions that avoid giving out monopolies, while contracts cannot be too short in terms of time. Variety use contracts for foundation seed production in Tanzania are tendered for a five-year period, but targets for variety dissemination are still too ambitious, and companies shy away from having to deliver foundation seed to other companies as well. In Kenya, KALRO has an agreement for dryland legumes with the Dryland Seed Company,

and a similar agreement (including geographic exclusivity) for other areas with a different company. In Uganda, NARO is planning to sign exclusive contracts with seed companies for hybrid sunflower production, with one hybrid for each company. Exclusive contracts also exist in West Africa (e.g. WASP agreements). CIMMYT has exclusive contracts with seed companies for hybrid maize in Zimbabwe, Mozambique and Zambia. Contracts set targets for the quantity and quality of seed of agreed varieties; there can be sanctions in cases of non-performing agreement partners. In many countries, there is private sector pressure on more exclusive public variety use agreements, such as in Kenya (potatoes), Zambia and Malawi (maize). Variety use agreements can also be matched with longer-term, multi-year collaborative agreements and even co-investment with clearly defined responsibilities in seed value chains.

Variety use agreements, particularly exclusive contracts, need to have an operationalization clause, as seed producers might be tempted to sit on varieties for competition purposes. This implies that it must be clear that agreements work in terms of planning, work schedule, tracking and monitoring. Examples exist of agreements that were revoked because of the operationalization clause.

Agreements come with commitment from both parties; they should be explicitly defined and include unambiguous arbitration clauses, penalty clauses, as well as quality clauses. The arbitration requires a clear mechanism and carefully spelled-out penalties for both parties. However, most countries lack independent arbitration, while arbitration clauses are not foreseen in contracts. In Zambia, agreements between ZARI and seed companies provide a discount in the case of a late delivery of the EGS.

Variety use agreements between research and seed businesses are increasingly becoming the norm in formal seed systems for reasons of variety dissemination and revenue; this is not the case for intermediate and informal seed systems. Direct agreements between breeders and CBOs exist for some commodities, for the production of foundation seed, as well as for the supply of foundation seed of publicly released varieties. The issue of exclusivity is only just beginning to emerge, although it is imaginable that a certain locally adapted variety may be handed over for exclusive multiplication by an association of seed-producing cooperatives, such as UNSPPA. Examples of such developments exist in Mali (sorghum hybrid production) as well as in Uganda (groundnut seed production by local seed businesses). The case studies on agreements for seed potato varieties in Kenya and Uganda further illustrate options for agreements between research organizations and CBOs.



Seed potato production in Kenya

Next

The continuing privatization of seed value chains in different seed systems leads to a need for public-private partnerships to guarantee a steady flow of released varieties to farmers. Agreements on this exist between public and private actors in formal seed value chains (e.g. hybrid varieties, and seed potatoes), but are less common in the intermediate and informal seed systems. This is largely due to the reduced presence of incentives for breeders, as well as regulations and procedures that do not fully appreciate the importance of these other seed systems. The agreements used by CIP provide that the varieties remain available in all regions/countries for non-commercial research conducted by public sector organizations and, in the event of a national or regional food security emergency, for the duration of the emergency (in case the varieties are bred by CIP).

The national workshops suggested that ISSD support further exchanges of experiences with variety use agreements

for non-hybrid crops in seed systems other than formal seed systems; this can lead to further learning on options for exclusivity agreements for QDS production. Sharing of lessons learned is needed on whether agreements are alternatives to plant variety protection regulations, and on incentives for public research for different seed systems. Regional capacity building on exclusive licensing agreements is also needed for all seed systems. The ISSD network was suggested to set up a database of public variety use agreements to support transparency, as well show the benefits of well-performing arrangements and agreements.

Key partners in these activities that were mentioned are: farmers' unions and associations (such as UNSPPA, particularly for intermediate and informal seed systems); the Alliance for a Green Revolution in Africa (AGRA), CGIAR and RECs for their ongoing experiences with supranational contracts; and national actors such as quality control agencies, NARIs and potential brokers for small-scale seed producers (possibly a role for extension services?).

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ISSD Africa is a community of practice that unites African seed experts, seed programmes and associated organizations, and which aims to increase farmers' access to quality seed through the development of a market-oriented, pluralistic and vibrant seed sector in Africa.

The ISSD approach is a farmer-focused and demand-driven seed sector development approach, which caters for the diversity of seed demands. Through this approach interventions are designed that are tailored to specific crops, value

chains and seed systems. It is a seed sector-wide and inclusive approach.

ISSD Africa is coordinated by a consortium of Wageningen Centre of Development Innovation (CDI) of Wageningen University & Research, the Royal Tropical Institute (KIT), the Future Agricultures Consortium and Tegemeo Institute of Agricultural Policy and Development in Nairobi Kenya.

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