



Cikondwerero Cakukumbukira kuti Pajumpha Vyaka 20 Kufumira apo Mbuto Zalero (Izo Ukhaliro Wakhe Wuli Kusinthika Pakugwiriska Nchito Maluso gha Sayansi/ Mbuto Izo Ukhaliro Wakhe Wuli Kusinthika Pakunjizga Tunthu Uto Tukulongola Ukhaliro wa Mbuto Zinyakhe Mkati Mwakhe) Zikaŵikikira pa Msika wa Calo Cose Capasi: 1996 mpaka 2015

Ŵakulemba mba Clive James, awo ŵakambiska kweniso awo ŵakaŵa ŵapampando ŵa wupu wa ISAAA

Mlembi Dr. Clive James wacipereka cakulembeka ici kwa msambizgi wakhe kweniso munyakhe wakugwira nayo nchito cipondi Nobel Peace Laureate, Norman Borlaug kweniso movwiri uyoso wakambiska wupu wa ISAAA

FUNDO ZIKULUZIKULU KHUMI zakukhwaska mbuto za lero (Izo Ukhaliro Wakhe Wuli Kusinthika Pakugwiriska Nchito Maluso gha Sayansi/Mbuto Izo Ukhaliro Wakhe Wuli Kusinthika Pakunjizga Tunthu Uto Tukulongola Ukhaliro wa Mbuto Zinyakhe Mkati Mwakhe) Muvyaka Vyakwambirira 20, 1996 mpaka 2015.

FUNDO # 1. 2015 cikaŵa caka ca 20 ico nchito yakuŵika pa msika mbuto zalero (Izo Ukhaliro Wakhe Wuli Kusinthika Pakugwiriska Nchito Maluso gha Sayansi) yikalutirira kwenda makola. Mahekala agho pakupandika mbuto zalero izi ghakukulirakulira caka na caka nakuti pavyaka 20 ivyo vyajumpha ivi: 1996 mpaka 2015 mahekala 2 biliyoni, agho ni malo ghakulu kutayimuza kaŵiri malo ghose agho ni caro ca US (mahekala 937 miliyoni), ghakalimika caro cose capasi mu vyaro 28; Phindu ilo ŵalimi ŵali kusanga kufumira caka ca 1996 kuzakafika 2015 likughanaghanirika kuti likujumpha US\$150 biliyoni. Ŵalimi ŵakukwana 18 miliyoni, awo ŵakuzomerezga kusanga phindu pacokowaka, ŵakasanga phindu caka na caka nakuti 90% ya ŵalimi aŵa mbalimi ŵacokoŵacoko, ŵalimi awo ŵaliye vipangiri vyakwenerera ŵamuvyaro vyakusawuka.

FUNDO # 2. Kuzomerezgeka kwa mbuto zalero muvyaka 20 vyakwamba. Pakutolera kuti mbuto zalero zikupandika zinandi kusazgikirapo pakale caka na caka kwa vyaka 19 kufumira 1996 kuzakafika 2014, ukulu wa malo agho pakupandika mbuto zalero izi ukafika pamahekala 181.5 miliyoni caro cose capasi mu caka ca 2014 kuyaniska na mahekala 179.7 miliyoni agho ghakapandika mu caka ca 2015, ivyo vikuyanana na kucepa kwa malo agho pakulimika mbuto zalero caka na caka agho ghakacepa na 1.0% pakati pa 2014 na 2015. Vyaro vinyakhe vikasazgirako malo agho vikapandapo mbuto zalero izi papo vyaro vinyakhe vikacepeska mahekala agho vikapandapo mbuto izi cifukwa cakukhira mtengo kwa mbuto izo zikuguliskika; Kucepa uku kwa mahekala agho pakupandika mbuto izi kusinthege pala mtengo wa mbuto izi wakwera, mbuto izi zambengeso kupandika pa mahekala ghanandi. Unandi wamahekala agho pakupandika mbuto zalero izi ukaluta panthazi kutayimuza 100 kufuma pa mahekala 1.7 miliyoni mucaka ca 1996 kufika pa mahekala 179.7 miliyoni mucaka ca 2015, ivyo vikapangiska kuti mbuto zalero ziŵe zakuzomerezgeka/kupokerereka luŵiro mwa maluso ghose ghakukhwaska mbuto agho ghalipo lero.

FUNDO # 3. Mucaka cacinayi, vyaro vyakusauka vikapanda mbuto zalero zinandi comene. Mu caka ca 2015, ŵalimi ŵaku Latin America, Asia na Africa ŵose pamodza ŵakapanda mahekala ghakukwana 97.1 panji kuti 54% yamahekala 179.7 miliyoni agho pakapandika mbuto zalero izi pa caro cose capasi (53% mucaka ca 2014) pakuyaniska na vyaro vyakuhupuka ivyo vikapanda mbuto izi pa mahekala 82.6 miliyoni panji kuti 46% (47% mucaka ca 2014); ucitiro uwu wukuwoneka kuti wulutirirenge. Mwa vyaro 28 ivyo vikapanda mbuto zalero izi mucaka ca 2015, vinandi vikaŵa vyaro vyakusawuka, vikaŵapo 20 na vyakuhupuka 8.

FUNDO # 4. Mbuto Izo Ukhaliro Wakhe Wuli Kusinthika Pakunjizga Tunthu Uto Tukulongola Ukhaliro wa Mbuto Zinyakhe Mkati Mwakhe zikapandika pa mahekala ghakukwana 33% ya mahekala 179.7 miliyoni agho pakapandika mbuto zalero izi caro cose capasi. Mwamitundu yikuluyikulu yose yitatu ya mbuto zalero izi, w'alimi wakutemwa mbuto izo ukhaliro wakhe wuli kusinthika pakunjizga tunthu uto tukulongola ukhaliro wa mbuto zinyakhe mkati mwakhe. Mahekala agho pakapandika mbuto izo ukhaliro wakhe wuli kusinthika pakunjizga tunthu uto tukulongola ukhaliro wa mbuto zinyakhe mkati mwakhe ghakasazgikirako kufuma pa 51.4% miliyoni mucaka ca 2014 kufika 58.5 miliyoni mucaka ca 2015 – kusazgikirako na mahekala 7.1 miliyoni ivyo vikuyana waka na kusazgikirako na 14%. Mucaka ca 2015, vyaro 14 vikapanda mbuto izo ukhaliro wakhe wuli kusinthika pakunjizga tunthu uto tukulongola ukhaliro wa mbuto zinyakhe mkati mwakhe izo zikaŵa na ukhaliro wa mbuto ziŵiri panji kujumpha apo, mwa vyaro ivi, 11 vikaŵa vyaro vyakusawuka. Mucaka ca 2015 caro ca Vietnam cikapanda ngoma izo ukhaliro wakhe wuli kusinthika pakunjizga tunthu uto tukulongola ukhaliro wa mbuto zinyakhe mkati mwakhe izo zikucemeka ngoma za Bt/HT ngati mbuto yalero yakwamba kupandika mucaro ico.

FUNDO # 5. Fundo zikuluzikulu zaumo vyaro vyakusawuka vili kucitira mu caka ca 2015. Caro ca Latin America cikalima mahekala ghanandi kujumpha caro cinyakhe cili cose mwakudangilirika na caro ca Brazil, nakuti caro cakulondezga apo cikaŵa caro ca Argentina. Ku Asia, caro ca Vietnam cikapanda mbuto za lero izi kwa nyengo yakwamba nakuti khumbiro ili caro ca Bangladesh cili nalo likapangiska kuti caro ici cipande mabiringano gha Bt ghanandi nakuti cili kusolaposo mpunga wa Golden, m'phatata zalero na nthonje lalero ngati mbuto izo caro ici cizamupanda kunthazi uku. Caro ca Philippines cikupanda ngoma zalero kwa vyaka 13 sono wambula kusanga suzgo lili lose nakuti cikususka ceruzgo ico Khoti la Suprimu likapereka sonosono apa cakukhwaska mbuto zalero izi, papo caro ca Indonesia cakhala pacoko waka kuzomerezga mijuŵa iyo yikupandika pamulyango iyo yikunchintha ku cilangalanga/lulanga. Caro ca China cicali kusanga phindu likulu kufuma mu thonje la Bt (casanga US\$18 biliyoni kufumira caka ca 1997 kuzakafika 2014), nakuti sonosono apa kampani yaboma ya ChemChina yikalayizga kuti yiperekenge US\$43 biliyoni ku kampani yakupanga vinthu vyakovwira pa ulimi ya Syngenta pakukhumba kugula katundu uyo. Mucaka ca 2015 caro ca India cikaŵa caro ico cikakolola nthonje linandi comene caro cose capasi nakuti thonje la Bt likawovwira kuti caro ca India cifike apa, phindu ilo caro ici cili kusanga kufumira mucaka ca 2002 kuzakafika 2014 likughanaghanirika kuti ni US\$18 biliyoni. Caro ca Africa naco canguluta panthazi nanga wuli kwanguŵa cilangalanga/lulanga ku South Africa ivyo vikapangiska kuti ghalimike malo ghakucepa na mahekala 700,000 mucaka ca 2015 – kucepa comene na 23%. Ivi vikulongola kukhumbika kwa mbuto izi mu caro ca Africa umo cilangalanga/lulanga cikofya, kweni mwa mwaŵi ngoma za lero za WEMA zakunchintha ku cilangalanga zikupangika izo zambenge kupandika mu caka ca 2017. Caro ca Sudan cangusazgirako malo agho cikupandapo thonje la Bt na 30% kufika mahekala 120,000 mucaka ca 2015 papo vinthu vinandi vikapangiska kuti ghaleke kulimika malo ghakulu ku Burkina Faso. Cakukhumbika comene nchakuti mucaka ca 2015 vyaro 8 vyamu Africa vikayezgerera kupanda mbuto zakovwira kuti cuma ca wanthu wakavu cilute panthazi kweniso mbuto zakuzirwa zamu Africa ico nchinthu cakwambirira kucitika ico cikudangilira kuti mbuto zalero zizomerezgeke.

FUNDO # 6. Vinthu vikuluvikulu ivyo vyacitika ku US mucaka ca 2015. Vinthu vinandi vikaluta panthazi kusazgapo: Kuzomerezga kakwamba na kuŵika pamsika mbuto ziphya zalero zakupambanapambana ngati m'phatata za Innate™ na maapozi gha Artic®; kuŵika pamsika nchunga za SU canola™ izo ni mbuto yakwamba iyo ukhaliro wakhe wuli kusinthika wambula kunjizga tunthu twakulongola ukhaliro wa mbuto yinyakhe mkati mwakhe; kuzomerezga kwa nyengo yakwamba cakurya ca wanthu cakucemeka GM salmon cakufumira ku nyama izo ukhaliro wakhe wuli kusinthika pakunjizga mkati mwakhe tunthu uto tukulongola ukhaliro wa nyama zinyakhe; kweniso kulutiska panthazi kagwiriskiro nchito ka R&D ka luso la sayansi lankhongono comene lakusinthira ukhaliro wa mbuto lakucemeka CRISPR (Cluster Regularly Interspersed Short Palindromic Repeats); kupanda comene ngoma zalero zakwamba zakunchintha ku cilangalanga (wonani musi umu). Kuzazga Dow na DuPont nakupanga DowDuPont.

FUNDO # 7. Kuzizomera comene ngoma zalero zakwamba zakunchintha ku cilangalanga izo zikapandika mu caro ca US. Ngoma zalero zakunchintha ku cilangalanga za DroughtGard™ zikapandika

kwanyengo yakwamba ku US mucaka ca 2013 nakuti mucaka ca 2015 mahekala agho pakapandika ngoma izi ghakasazgikirapo kutayimuza ka 15 kufuma pa mahekala 50,000 mucaka ca 2013 kufika mahekala 810,000 ivyo vikulongola kuti watalimi watalikuzipokerera comene ngoma izi. Cakucitika cenecici caperekeaso ku wupu wa public-private partnership WEMA (Water Efficient Maize for Africa), ilo cakulata cakhe nkhubereka ngoma zalero zakunchintha ku cilangalanga panyengo yakwenerera ku vyaro vyakusoleka waka vyamu Africa pala caka ca 2017 cikufika.

FUNDO # 8. Umo mbuto zalero zikucitira ku EU. Vyaro vinkhondi vene vila vyaku EU vicali kulutizga kupanda ngoma zalero za Bt pa mahekala 116,870 agho ngakucepa na 18% kuyaniska na mahekala agho ghakalimika mucaka ca 2014. Mahekala agho ghakalimika ghali kucepa muvyaro vyose cifukwa ca vintu vinyakhe kusazgapo, ngoma zakucepa zikapandika, watalimi awo wakukumana na masuzgo wakukhoneskeka mtima yayi.

FUNDO # 9. Mphindu ilo mbuto zalero zili kupereka. Kawuniwuni wa makafukufuku ghakukwana 147 agho ghacitika muvyaka 20 ivyo vyajumpha ivi ghali kulongola kuti “**kuzomerezgeka kwa maluso gha sayansi ghakusinthira ukhaliro wa mbuto kwapangiska kuti munkhwala wakukomera tuvidoyoyo mu mbuto wugwiriskike nchito wakucepa na 37%, ivyo vyapangiska kuti vuna liwe linandi na 22% ivyoso vyapangiska kuti phindu la watalimi liwe linandi na 68%**” (Qaim et al, 2014). Vyakulondezga ivi vikukolerana na vyakulondezga vya wakafukufuku wanyakhe wapacaka wacarо cose capasi (Brookes et al, 2015). Kufumira mu caka ca 1996 kuzakafika caka ca 2015, mbuto zalero zovwira kuti kuwe Cakurya Cakukwana, Kuwa wakujigomezga kweniso Kusintha kwa nyengo: pakusazgirapo vuna lakukwana US\$150 biliyoni; kupereka malo ghawemi ghakukhala pakupangiska kuti munkhwala wakukomera tuvidoyoyo wakukwana makilogalamu 584 miliyoni wuleke kugwiriskika nchito; mu caka ca 2014 pera, muvuci wa CO₂ wakufumiskika na magalimoto ukacepeskeka na makilogalamu 27 biliyoni ivyo vikuyana waka na kufumiskapo magalimoto 12 miliyoni pa msewu kwa nyengo yakukwana caka cimoza; kuvikirira cilengiwa pakupangiska kuti mahekala 152 miliyoni ghaleke kulimika kufumira mucaka ca 1996 kuzakafika 2014; kovwira kucepeska ukavu wa watalimi wacoko wacoko 16.5 miliyoni na mabanja ghawo, wose pamoza wakukwana wanthu pafupifupi 65 miliyoni awo mbanyakhe mwa wanthu wakavu comene pa caro cose capasi. Mbuto zalero ndi mbuto zakukhumbika comene kweni pa izo zekha ni zgolo yayi – zikukhumbika kulondezga kalimiro kawemi ngati kupanda mbuto mwakusinthiska minda kweniso kupwererera mbuto izo zikutondeka ngati umo vikukhumbikira na mbuto zinyakhe zamazuwa ghose.

FUNDO # 10. Iryo Vikulindiririka Kunthazi. Vintu vitatu vikukhumbika kuvighanaghanira. **Cakwambirira**, kupokererera comene kwa mbuto izi (90% mpaka 100%) mumisika yinandi ya mbuto izi **ivyo vikupereka mwa wi wakucepa wakuti malo agho pakulimika mbuto izi ghangasazgikirako**; nangawuli vili nthena pali mwa wi ukulu muvyaro vinyakhe vyasono wa mbuto zinyakhe zakucepa ngati ngoma zalero izo zinamwa wi wakuti zingapandika pa mahekala 100 miliyoni caro cose capasi, mahekala 60 miliyoni ku Asia (35 miliyoni ku China pera), na 35 miliyoni ku Africa. **Cachiwiri**, pali **mbuto zalero izo zikupangika zakujumpha 85** izo wakuziyezgerera kupanda, ico ni cinthu cawumaliro kucita kuti mbuto izi zifike pakuzomerezgeka. Pambuto izi paliso ngoma za WEMA izo zikunchintha kucilangalanga izo zikulindiririka kupandika ku Africa caka ca 2017, mphunga wa Golden ku Asia kweniso makombwe ghakukhoneskeka na nkunde zakunchintha kutuvidoyoyo zikuwoneka kuti zingacita makola ku Africa. Ngati wupu, public-private partnership (PPP) wafiska kupanga mbuto zakuzomerezgeka kweniso kuzipereka izo kwa watalimi. **Cacitatu**, kusangika kwa mbuto izo ukhaliro wakhe wuli kusinthika vinga wa cinthu cakuzirwa comene ico wanthu wasayansi wasanga. **Luso la sayansi lasonosono apa kweniso ilo likupereka cigomezgo ni luso lankhongono lakucemeka CRISPR.** Wanthu wakumanya makola awo wakula wisiska umo nchito iyi yikwendera wali na cigomezgo kuti kusintha ukhaliro wa mbuto wambula kunjizga tunthu twakulongola ukhaliro wa mbuto yinyakhe mkati mwakhe kuli na uwemi uwo ukwiza panyengo yakhe kupambana na mbuto zinyakhe zanyengo zose panji izo ukhaliro wakhe wuli kusinthika pakunjizga mkati mwakhe tunthu uto tukulongola ukhaliro wa mbuto zinyakhe, uwemi uwo wuli munthowa zinayi: **zilije vyakubudika, zikutola nyengo yinandi yayi, zikunjira munthumba (zikukhumba ndalama**

zinandi) yayi kweniso zilije malango ghakusuzga. Kupambana na malango ghakusuzga agho ghakulondezgeka pakusinthira ukhaliro wa mbuto pakucita kunjizga tunthu twakulongola ukhaliro wa mbuto zinyakhe mkati mwakhe, mbuto izo ukhaliro wakhe wukusinthika wambula kunjizga tunthu twakulongola ukhaliro wa mbuto zinyakhe mkati mwakhe, zikujipangiska zekha kuwa zakupangirapo maluso gha sayansi, vinthu vyose mkati mwakhe vikuwa pamulingo wakwenerera kweniso zikulondezga malango ghakusuzga yayi. **Nthowa yinyakhe yakusinthira ukhaliro wa mbuto yakuti yigwiriskike nchito kunthazi yasacizgika** (Flavell, 2015) **iyoyikusazga mtundu wa tunthu twakulongola ukhaliro wa mbuto utwanjizgika mumbuto yinyakhe, kunsintha ukhaliro wa mbuto wambula kunjizga tunthu twakulongola ukhaliro wambuto yinyakhe na tuvidoyoyo twambula kuwoneka na maso** (kugwiriska nchito tuvidoyoyo uto tukukhala muvyakumera ngati tunthu twakusazgirapo twasono twakusinthira ukhaliro wambuto) **kuti tisange vuna linandi, pakulimbikiska nthowa “izo zingawa zakulutirira” izo zingawovwira kufiska vyakulata vyapacanya vyakuti tiwe na cakurya cakukwana kweniso kumazga njala na ukavu.**

ISAAA ni wupu uwo cakulata cakhe khupanga phindu yayi kweni likovwirika na maofesi ya boma kweniso makampani. Mahekala ghose agho pakupandika mbuto zalero agho ghazunulika muvyakulembeka vyose vya ISAAA ghakuweregeka kamoza pera wambula kutolera kuti mumbuto iyo muli kuwikika ukhaliro wa mbuto zamitundu yilinga. Vinandi pa nkhanu iyi vili mu ISAAA Brief 51 “20th Anniversary (1996 to 2015) of the Global Commercialization of Biotech Crops and Biotech Crop Highlights in 2015”, cakulembeka na Clive James. Pala mukukhumba kumanya vinandi lawiskani ku <http://www.africenter.isaaa.org> panji yimbani ku ISAAA *AfriCenter* pa nambala iyi +254204223618 panji lembani kalata yakwenda pa magesi ku africenter@isaaa.org.