



Nkhani zikuluzikulu pa dziko lonse za mbewu zamalonda za makono zopangidwa ndi ukadawulo wa sayansi (GM): 2009

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Cholembedwa popeleka ulemu ndi mayamiko kwa malemu Nobel Peace Laureate, Norman Borlaug

ISAAA Brief 41 ndi nkhanzi mwachidule zakhumi ndi chinayi za kawuniwuni wa pachaka wa dziko lonse lapansi wowonetsa momwe mbewu zamakono za GM (zomwe chikhalidwe chake chinasinthidwa pogwiritsa ntchito luso la sayansi) zikuyendera chizikhazikitsireni ngati zamalonda muchaka cha 1996. Mlembi wa nkhanzi (Brief 41) anachilemba popereka ulemu ndi mayamiko kwa malemu Nobel Peace Laureate Norman Borlaug, omwe anali munthu woyamba pautsogoleri wa ntchito za ISAAA. Nkhanzi zikufotokoza mwachidule ntchito zikuluzikulu zomwe zachitika mu chaka cha 2009 ndipo tsatanetsatane wantchitozi akupezeka pa <http://www.isaaa.org>.

Chifukwa cha ubwino wa ulimi wodalarika ndi wopindulitsa, zinthu monga zokolola, chuma, chilengedwe, umoyo wa anthu zakhala zikuyenda bwino ndipo zapangitsa kuti alimi a GM achuluke. Alimi ang'ono-ang'ono ndi akulu-akulu wodziwika muchakachi akwana 14 miliyoni kuchokera mu mayiko 25 ndipo analima ma hekitala 134 miliyoni (maekala 330 miliyoni) mu 2009. Izi zikusonyeza kukwera kwa 7% kapena kuti mahekitala 9 miliyoni (maekala 22 miliyoni) kuposa a 2008. Komanso kuchuluka kwa 8% kapena kuti mahekitala 14 miliyoni a mbewu zamphavu za mitundumitundu kunachitika tikalinganiza ndi 2008. Mehekitalawa okwana 180 miliyoni muchakachi akuposera mahekitala 166 a mu 2008. Kuchuluka kokwana ka 80 kamahekitala kuchoka 1996 kufika 2009 kwaonetsa kuti mbewuzi ndizimene zikukwera mothamanga kwambiri muulimi. Izi zikuwonetsa kuti alimi a GM pa dziko lonse akuwudalira ndi kuwukhulupilira ulimiwu ndipo akupitilira kuzala mbewu mochulukira chaka ndi chaka kuyambira 1996. Izi ziri choncho chifukwa chakuti mphindu la chulukira la ulimiwu ndilowonekeratu.

Mchaka chimenechi, mahekitala olimapo mbewu zinayi zomwe zimalimidwa kwambiri anawonjezeleka. Kwa nthawi yoyamba nyemba za soya za GM zinalimidwa koposa mbewu zina zonse. Pamahekitala 90 miliyoni omwe mbewuzi zikulimidwapo, theka ndi kota ($\frac{3}{4}$) mwa iwo ndi ambewu za GM. Pamahekitala a thonje woposela theka la thonje lomwe limalimidwa padziko lonse, mahekitala 33 miliyoni, panalimidwa thonje la GM. Pamahekitala 158 miliyoni a chimanga chomwe chimalimidwa padziko lonse, kota ($\frac{1}{4}$) la iwo panalimidwa chimanga cha GM. Kanola yomwe amalimidwa mahekitala okwana 31 miliyoni padziko lonse, analimidwanso kwambiri koposela mahekitala okwana 6.2 miliyoni. Muchaka cha 2008, mumayiko akuluakulu, anthu wolima mbewuzi anawonjezeleka ndipo muchaka cha 2009 mahekitala anawonjezeleka. Mwa chitsanzo, ku India chiwengero chinakwera kuchoka pa 80% kufika pa 87% mu 2009; Ku Canada chiwengero chinakwera kuchoka pa 87% kufika pa 93%. Soya akupitililabe kukhala mbewu ya GM yomwe ikulimidwa kwambiri kuposa mbewu zina. Pamahelakala 134 miliyoni, 52% mwa iwo ndi soya ndipo amayanjana kwambiri ndi makhwala ambewu (62%). Mbewu zomwe zimakhala za mphamvu za mtundutundu, zomwe ubwino wake ukuchulukira zikulimidwa mumayiko 11, 8 mwa mayikowa ndi amene akukwera kumene, ndipo tsopano mbewuzi zikutenga gawo lokwana 11% pawulimiwu.

Pamayiko 25 omwe akupanga ulimiwu (German idasiya ilimiwu mu 2008 ndipo Costa Rica idayambapo mu 2009), 16-ndi mayiko okwera kumene pamene asanu ndi anayi (9) ndi mayiko olemera. Mayiko asanu ndi atatu (8) otsatirawa analima mahekitala oposela 1 miliyoni; USA (64.0 miliyoni), Brazil (21.4), Argentina (21.3), India (8.4), China (3.7), Paraguay (2.2) ndi South Africa (2.1). Mahekitala ena osala okwana 2.7 miliyoni anazalidwa mumayiko 17 omwe ndi Uruguay, Bolivia, Philippines, Australia, Burkina Faso, Spain, Mexico, Chile, Colombia, Honduras, Czech Republic, Portugal, Romania, Poland, Costa Rica, Egypt ndi Slovakia (Mayiko alembedwa mundondomeko wakachukulikidwe kamahekitala kuyambira otsika).

Mahekitala omwe ulimiwo wakhala ukulimidwa kuyambira 1996 kufika 2009 akusala pang'ono kufika 1 biliyoni tikawaphatikiza (ma hekitala 949.9 miliyoni kapena maekala 2.3 biliyoni).

Pafupifupi theka (46%) ya mahekitala omwe ulimiwu ukuchitika padziko lonse, anadalidwa mumayiko okwera kumene. Pali chiyembekezo chakuti pofika 2015, mayikowa azakhala otsogola paulimiwu kuposa mayiko olemera. Mayiko adziko lonse analonjeza kuchepetsa njala ndi umphawi pafupifupi ndi theka. Mbewu za GM zikutengapo gawo pa ntchitoyi ndipo zikusonyeza kuti zizayenda bwino zedi.

Chosangalatsa ndi chakuti pa 14 miliyoni ya alimi womwe akupindula kuchokera mu ulimiwu, 13 miliyoni (90%) ndi alimi ang'ono-ang'ono, osauka. Alimi pakali pano akupindula ku mbewu za GM monga thonje la GM ndipo zikusonyeza kuti posakhalitsa alimiwa azachita bwino ndi mpunga wa malonda wa GM.

Nkhani mwachidule za ISAAA mu 2008 zinalosera kubwera kwa mbewu zina za tsopano za GM. Ulosiwu wayamba kuvomelezeka mu 2009. Chikonzero chachikulu chinakhazikitsidwa pa 27 November 2009 ku China pamene masatifiketi a biosafety (kuteteza chilengedwe) anapelekedwa kwa amalonda a mpunga wa GM ndi Chimanga cha GM okhazikika mudzikolo. Izi zatsegula njira ya kawundula wa mbewu omwe achitike zaka ziwiri kapena zitatatu zikubwerazi malonda a mbewuzi asanayambe. Chikonzerochi ndi chabwino chifukwa chizapindulira mabanja 110 miliyoni (anthu 440 miliyoni tikayekeza kuti pa banja pali anthu 4) mudzikoli omwe amadalira mpunga pa chakudya. Mabanja 250 miliyoni aku Asia omwense amadalira mpunga (anthu 1 biliyoni), azapindulanso ndi ulimiwu. Alimi ampunga ndi amodzi mwa anthu wosaukisisa padziko lonse ndipo amalamila mpunga wa mahekitala ochepa ($\frac{1}{3}$). Mpunga wa GM ungathandize kuchulukitsa zokolola komanso kuthetsa umphawi wa alimiwa. Mowonjezera apo, mankhwala atizirombo ogwiritsidwa ntchito angachepenso zomwe zingathandize kuteteza nthaka ndi kusintha kwa nyengo. Padziko lonse, mpunga ndi chakudya chofunikira koposa kuwanthu pamene chimanga ndi chakudya chofunikira kwambiri kuziweto. Chimanga cha GM chingathandize kuti Nkhumba zidye fosifolasi (phosphorous) wambiri zomwe zingachepetse polushoni yodzera mu kuchepa kwa fosifate mundowe (phosphate). Kutukukira-tukukira kwa dziko la China kwapangitsa kuti chiwerengero chofuna nyama chikulenso ndipo chimanga cha GM chingapeleke chakudya cha makono ku Nkhumba 500 miliyoni za ku China (ili ndi theka la nkhumba za padziko lonse). Komanso ziweto zantundu wa nkhuku monga a bakha, nkhuku zokwana 13 biliyoni zingapezenso chakudya ku chimangachi. Chimangachi chingathe kupindulira mabanja 100 miliyoni a dziko la China (anthu 400 miliyoni). Chifukwa cha kufunika kwa mpunga ndi chimanga padziko lonse ndi kukula kwa ulimiwu dziko la China, mayiko ena a ku Asia ndi dziko lonse akufunika kuti atengelepo chitsanzo

ku dziko la China momwe ulimi wawo watukukira. Kutsogola kwa China pa ulimiwu kungakhale chitsanzo kwa mayiko ena omwe akukwera kumene ndiponso kungathandize kuti chakudya chizikhala chokwanira, ulimiwu ndi wokhazikika omwe siwudzifuna mankhwala atizirombo a mbiri ndi kuthetsa njala ndi umphawi. Kukula kwa ulimiwu mdziko la China kungapangitse kuti zinthu mdziko la China, Asia ndi dziko lonse zisinthe chifukwa mpunga ndi chimanga ndi zofunikira zedi ku wanthu ndi ziweto.

Munkhani Mchidule ndondomeko 41, Dr John Benett (Honorary Professor) yemwe ndi mphuzitsi pa yunivesite ya Sydney ku Australia (School of Biological Sciences), akufotokozera za mpunga wa GM ndi tsogolo la ulimi wa mpunga.

Mu 2009, Brazil inatsogola mpakana kukhala yachiwiri padziko lonse lapansi kupambana mayiko onse paulimiwu kuposera Argentina yomwe inali ya chiwiri mbuyomu. Brazil inawonjezera mahekitala 5.6 miliyoni aulimiwu mukutero linaposera mayiko wonse pakakulidwe kantchito za ulimi mu chakachi, kukula pa ntchitozi ndi 35% kuchokera mu 2008 kufika 2009. Ndichachiziwikire kuti Brazil ikutsogola pa ulimiwu wa GM pa dziko lonse ndiponso ndi yodalilika patsogolo la ulimiwu. India, ndi dziko lomwe likutsogola pa ulimi wa thonje padziko lonse, lakhala likupindula kwa zaka 8 kudzera mu ilimu wopambana wa thonje la GM. Mu 2009 alimi anafika 87%. Thonje la GM lasinthiratu ntchito za thonje mudzikoli. Mphindu lomwe alimi akhala akupeza muzaka 8 zimenezi lafika US\$5.1 biliyoni. Thonje la GM lachepetsanso ndi theka makhwala atizirombo ofunika pa ulimiwu ndipo kuchuluka kwa zokolola kwapangitsa kuti zinthu zisithe kuchoka India. Pakali pano India yasiya kugula komano likugulitsa thonjeli. Mabilingano a GM, omwe akuyembekezeka kukhala mbewu yachakudya ya GM yoyamba ku India, anasankhidwa kokhala mbewu ya malonda ndi akulu aboma mudzikolo ndipo pano akudikira kuti boma livomereze. Chitukuko pa ulimiwu chachitikanso mu mayiko atatu a mu Africa – South Africa yakwera ndi 17% mu 2009. Burkina Faso yawonjezera ulimiwu ndi 14% kuchoka pa ma hekitala 8,500 mu 2008 kufika pa 115,000 mu 2009, kukwera kwa 1,353 %, kukwera kopambana zina zonse mu chakachi. Mayiko 6 amu EU anazala mahekitala 94,750 mu 2009, kuchepa ndi 9 kapena 12 % tikatengera chaka cha 2008. Spain inazala 80% ya chimanga mu EU mu 2008 ndipo ku izi sizinasithe ndipo alimi anawonjezeleka ndi 22%. Shuga biti wa RR anawonjezeleka ndi 95% ku USA ndi Canada mu 2009, muzaka zitatu zokha pa ulimi wa malonda wa mbewuyi. Izi zapangitsa kuti mbewuyi ikhale mbewu imene yawonjezeleka mwachangu padziko lonse, pakali pano.

Mu 2009 panali kusintha kwa mbewu zimene zimazalidwa poyamba ndi mbewu zagulu la chiwiri zomwe zinapangitsa kuti zokolola zichuluke. Soya wa RReady2Yield™, ndi chitsanzo choyamba cha mbewu za GM zomwe zikufufuzidwa ndi akadawulo ndipo soya anazalidwa ndi alimi okwana 15,000 pa mahekitala 0.5 miliyoni ku United States ndi Canada mu 2009.

Kawundula wa GM akusonyeza kuti kuchoka mu 1996 kufika 2008 chuma chodzera muulimiwu chakwana 51.9 biliyoni. Kuwonjezera apo, zokolola zochuluka zokwana matani 167 miliyoni (50%); zokololazi zinakafuna malo olima owonjezera okwana ma hekitala 62.6 miliyoni zinakakhala kuti ulimi wa GM sunagwiritsidwe ntchito. Izi zikusonyeza kuti ulimiwu umapangitsa kuti malo agwiritsidwe ntchito bwino. Mu kanthawi kameneka, 1996 kufika 2008, zawonekanso kuti kagwiritsidwe ntchito ka mankhwala ophera tizirombo kakuchepa ndi makilogilamu okwana 356 miliyoni (8.4 % ya mankhwalawa). Mu chaka cha 2008 chokha, pweya oyipa wokwana makilogilamu

14.4 biliyoni unachotsedwa, pweya ofanana ndi kuchotsa magalimoto 7 miliyoni (Brookes and Barfoot, 2010, forthcoming)

Mu 2009, anthu apadziko lonse wopitilira theka (54 % kapena kuti 3.6 biliyoni) anali mumayiko 25 omwe ulimi wa GM ukuchitikirako pa mahekitala wokwana 134 miliyoni, malo okwana 9% ya mahekitala 1.5 biliyoni womwe ndi malo onse amene angalimidwe padziko lonse.

Chopeza kuchokera ku mbewu ya GM patsiku chikhoza kukwana US\$10.5 biliyoni mu 2009. Kutsatira apo, ndalama kudzera mu malonda a ulimi wa GM wa chimanga, soya ndi thonje chinakwana US\$130 biliyoni mu 2008 ndipo ndalamazi zikhala zikukwerera chaka ndi chaka ndi 10% kapena 15%.

Mayiko 25 anazala mbewu za GM za malonda mu 2009. Kuwonjelera apo, mayiko 32 anapeleka chilolezo choyitanitsa mbewuzi ngati chakudya kuwantho kapenanso zinyama, komanso kukhala mbali yachilengedwe. Kuyambira chaka cha 1996, chiwerengelochi chikufikano mayiko 57. zilolezo zokwana 762 zinapelekedwa kwa mbewu zokwanira 24; mmodzi mwambewuzi ndi Blue Rose womwe yazalidwa ku Japani mu 2009.

Tsogolo la mbewu zina zatsopano za GM likuwoneka labwino ndipo upangiri wambiri upelekedwa ku ntchito zowona kuti ulimi ndi woyenera, wotsika mtengo ndi ntchito zokhazikitsa ndondomeko za nthawi. Chidwi chikukula pa ulimiwu. Chithandizo kumbali ya ndalama ndi ukadawulo wokwezera ulimiwu, zivomelezo ndi kuyamba kumene zikupita patsogolo mumayiko ambiri. Alimi ndi mahekitala akuyembekezeka kuchuluka ndi dabulo mudekedi yachiwiri ya ulimiwo (2006-2015) monga mmene inalosera ISAAA mu 2005 (ISAAA inalosera kuti pofika chaka cha 2015, mayiko opanga ulimiwu azakhalapo 40, alimi azafika 20 miliyoni ndipo mahekitala azafika 200 miliyoni). Mbewu zokwanira zizakhala zikupezeka ndi cholinga chokwaniritsa magawo onse ofunikira makamaka mayiko omwe akukwera kumene ku Asia, Latin America ndi Africa. Mbewu zowelengeka zosakhidwa za GM zizakhala zikupezeka kuyambira 2010 mpakana 2015 monga: chimanga cha SmartStax™ ku USA ndi Canada mu 2010, chomwe chidzakhala ndi mitundu yokwana 8 komanso mphavu zitatu; Mabilingano ku India mu 2010 boma likavomereza; Mpunga wa Golden ku Philippines mu 2012 ndipo Bangladesh ndi India zidzatsatira kenako Indonesia ndi Vietnam; Mpuga ndi chimanga za GM ku China mu zaka ziwiri kapena zitatu zikubwerazi; chimanga chopima kuchilala ku USA mu 2012 ndiponso ku Sub-Saharan Africa mu 2017; mwinanso tirigu wogwiritsa bwino Nitrogen muzaka zisanu kapena kuchulukirapo zikubwerazi.

Kutsatira mavuto a chakudya mu 2008, (zomwe zinapangitsa ziwawa mumayiko 30 okwera kumene komanso kugwetsa boma mu mayiko awiri - Haiti ndi Madagascar), anthu anawunikirapo za vuto lakusowa kwa chakudya molingana ndi chitetezo cha anthu. Chifukwa cha izi, chidwi ndi chithandizo ku kuchokera kwa ma bungwe wothandiza, akaswiri a sayansi, a tsogoleri amumayiko okwera kumene chikukwera. Chachikulunso ndi chakuti anthu akuyambanso kuzindikira gawo la ulimi pa moyo wa tsiku ndi tsiku komanso kukhazikitsa bata padziko. Makamaka, chidwi chilipo pakukweza ulimi ndi kuwonetsetsa kuti chakudya chokolola ndi chokwana kudzera mu njira za ulimi zotukuka za ukadawulo wa sayansi.

Kupambana kwa Norman Borlaug mu ulimi wa tirigu kunabwera chifukwa cha lutha, khama ndi kuyika mtima pa chinthu chimodzi - kuchulukitsa tirigu pahekitala. Anawonetsesanso kuti ayike chidwi pazinthu zolepheretsa ndi zothandiza ulimiwu uli mmunda (osati mongoyesezera pa sitieshoni yakafukufuku), ndiponso kuwona kayendedwe kaulimiwo dziko ndimenenso ukuthandizira kusungitsa bata ndi umunthu. Mutu wa mau omwe analankhulidwa zaka 40 zapitazo, mu 1970, polandira Nobel Peace Prize anayitchula kuti Kusintha kwa Ulimi, Bata ndi Umunthu. Zolinga za Borlaug zaka 40 zapitazo, kuchulukitsa zokolola, zikufanana ndi zolinga zathu lero komano vuto ndilo kuti zovuta zanthawi yathu zikuchuluka. Tikufunika ulimi wokhazikika wochulutsa zakudya dabulo koma mogwiritsa ntchito zinthu zochepera makamaka madzi, mfuwelo wosiya zosalira zomwe zithakuwononga chilengedwe, ndi nitrogen molingana ndikusintha kwa nyengo. Njira yabwino yolemekezera Norman Borlaug ndi mzeru ndi lutha zomwe anasiya ndi kugwirizana polimbana ndi zovuta zathu. Kumpoto, kumwera, kuzambwe ndi kuvuma, a boma ndi a mumapulayiveti sekita tonse tilimbikitse ulimi wa GM kuti zokolola zichuluke komano zolowa zizichepera-chepera. Chofunikira kwambiri, tithetse umphawi, njala ndi mavuto obwera chifukwa chosowa chakudya mmene tinalonjezera mu Ma Mileneyamu developmenti golo yathu ya 2015 pamenenso tizakhale tikumaliza dekedo yachiwiri mu ulimi wa malonda wa mbewu za GM.

Mawu otseka ndiwo ochoka kwa Norman Borlaug, amene anapulumutsa anthu 1 biliyoni kunjala, amene anali ndi chidwi ndi khama ndi ulimi wa GM chifukwa umachulukitsa chakudya, kuthetsa umphawi, njala ndi kupelewerwa zakudya m'nthupi ndiponso kubweretsa bata ndi umunthu. Borlaug anati 'Pazaka zapitazi tawona kupambana kwa ukadawulo wa sayansi pa mbewu. Ukadawulowu ukuthandiza alimi padziko lonse kukolola zambiri komanso kuchepetsa mankwhala atizorombo olova mmumunda ndiponso kukokoloka kwa nthaka. Ubwino wa ukadawulowu wawoneka muzaka zapitazi mumayiko omwe ali ndi chiwerengero choposa theka la chiwerengero chadziko lonse. Chofunika ndi kulimba mtima kwa a tsogoleri amumayiko omwe alimi akugwiritsabe njira zamalimidwe za kale ndi zosathandiza. Kusintha kwa ulimi ndi ukadawulo wa GM kuthandiza kuti tithe kukwaniritsa chakudya chomwe kufunikira kwake kukuwonjezeleleka komanso kutetezera nthaka mibadwo yamtsogolo.

Tsatanetsatane wankhanizi akupezeka mundondomeko 41 , yolembedwa ndi Clive James yofotokozera za malonda a mbewuzi padziko lonse mu 2009. Mukafuna kuziwa zambiri lumikizani ndi bungwe la ISAAA kuzera pa intaneti: <http://www.isaaa.org>, kapena e-mail ku info@isaaa.org kapena imbani ku ISAAA SEAsia Center panambala iyi +63 49 536 7216.