

Policies, value chains and stakeholder engagement



Australian Government

Australian Centre for International Agricultural Research





Cassava Situation update in Lao PDR





l. 101,100ha

II. 3,324,000 tons



Value of exports exceeded \$US100m in 2019



Export by destination and type



Export from Southern Laos into Ubon Ratchathani dominates registered trade



Seasonality of exports (Nov - March



Large expansion in Trade ~\$150m Jan - May 2020



New factories being established Some old factories close

- 1. PM decree on export of raw products Root export decline
- 2. Lao-Indochina Company open closed open closed
- 3. New factories opening in several Provinces
 - 1. Joint ventures with Vietnamese and Thai Companies

Thaiwah Starch Company joining Field Day in Xayabouli



What has been done to engage with stakeholders?

- 1. Harvest field days with farmers, government, and value chain partners.
- 2. Follow up focus groups with farmers to report agronomic and economic results to farmers
- 3. District level stakeholder meetings with village leaders, district and province agricultural staff, private sector, finance sector
- 4. Partnership with fertiliser import company
- 5. National level dialogue
- 6. Link to development projects ongoing
- 7. Key informant interviews with stakeholders on outcomes and future
- 8. Farmer survey on changes in KASA and Practices

Timeline of activities

<u>2016</u>

Value chain (May)

Focus group (May) DAFO training on cassava production

<u>2017</u>

Household survey (June-July) Trials established in consultation with DAFO and

stakeholders

<u>2018</u>

- Harvest field day (March)
- District Stakeholder meetings (Aug-Nov)
- Training of DAFO and farmers
- Farmer focus groups (scenario analysis)

<u>2019</u>

- Harvest field days
- National Stakeholder meeting (March)
- Farmer and DAFO training (August)

<u>2020</u>

- Harvest field days (Dec-Jan)
- Adoption survey (June)
- Stakeholder consultation on maintaining activities

Using the value chain assessment to identify initial entry points



Structure of the value chain varies between sites and is dynamic in Lao sites



Paklai, Xayabouli

Kenthao, Xayabouli

Expansion of activities as described previously



Participatory demonstrations



Harvest field days involving private sector



Focus group meetings for feedback on results and scenario analysis of 2018-2019 results



RTB gender researcher visit sites



Extension posters



ຫຼາຍປີຜ່ານມາສຸນຄົນຄວາກປ ສີກຳເຂດຮ້ອນສາກິນ ແລະ ຄໍ່ ຮ່ວມງານ ໄດ້ເຮັດການທິດລອງ ຮ່ວມກັບຂາວກະສິກອນ ແລະ ສນທິດລອງ ເຫັນວ່າມີຫຼາຍແນວພັນທີ່ໃຫ້ຜົນຜະລິດສາເຊັ່ນ:

ຣະປອງ 5, ຣະປອງ 11, ຣະປອງ 72, ກະເສດສາດ 50 (KU 50) ຈາກປະເທດໄຫ ແລະ KM 98-1, KM 140 ຈາກ ຫວາດນາມ ແນວພັນເທົ່ານີ້ໃຫ້ສິນສະລິດ ສາກວ່າແນວພັນ ຍັ້ນເມືອງຫຼາຍ. ສິນສະລິດຫິລສິດແມ່ນຢູ່ລະຫວ່າງ 10-45 ຕ/ ຮຕ/ປີ, ຂຶ້ນກັບຄວາມອຸດົມສົມບູນຂອງດິນ.

2. ການຄັດເລືອກທ່ອນພັນ



ກ່ອນພັນທີ່ມີຄນນະພາບດີ ຄື: ກ່ອນພັນທີ່ໃຫຍ່ແຂງແຮງ ຕາຫຼືຂໍ້ຫ່າງ ແລະ ບໍ່ຖື່ຜົນໄປ. ຕັດໃໝ່ໆ ແລະ ເປັນກ່ອນພັນກີ່ປອດພະຍາດ ແລະ ແມງໄມ ສັດຕູພືດ. ການຕັດຫ່ອນພັນ ໃຫ້ຕັດຫ່າງຈາກໜ້າດິນປະມານ 20 gu.

ຂໍ້ມູນເພີ່ມຕິດຕໍ່:

ໂຄງການ ຄົ້ນຄວ້າ ລະບົບການຜະລິດ ແລະ ການຕະຫຼາດ ມັນຕົ້ນ Tel: +856-21-770 090 + 856-20-2240 7957 E-mail: I.thao@cgtar.org khanthavongp@gmail.com + 856-20-9528 5588

ເກັບໄວ້ດິນຈະອອກສາກ ແລະ ຍອດຫາຍ, ຄວາມາອກ ຂອງທ່ອນພັນຈະຫຼຸດລົງ. ໂດຍທີ່ວໄປແລ້ວ, ຫຼັງຈາກເກັບ ກ້ບໍ່ຄວນຜ້າຍຮັກສາຫ່ອນຮັນໄວ້ດິນກວ່າ 2 ເດືອນ, ດີທີ່ ສຸດແມ່ນຫັບໄວປະມານ 1 ຫາ 2 ອາທິດ. ວິທີເກັບທ່ອນ ຄັນແມ່ນມັດເປັນມັດຍາວ, ແຕ່ລະມັດ 25 ລຳຍາວ ແລະ ເອົາໄປຄັ້ງເປັນກອງໄວ້ ແຕ່ລະກອງ 5-6 ມັດ ບໍ່ຕ້ອງ

ຕັ້ງຕິດກັນ ເພື່ອໃຫ້ລົມສາມາດລ່ວງໄດ້, ຖ້າກອງໃຫຍ່ຫຼາຍລົມບໍ່ລ່ວງຈະເກີດເຊື້ອລາ ຫຼື ເພັ່ມແບ້ງ. ທ່ອນພັນ ຖ້າຖືກແດດຫຼາຍຈະແຫຼ່ງໄວ ຖ້າຮິ່ມຫຼາຍກໍ່ຈະເກີດເຊື້ອລາ ແລະ ເພັບແບ້ງຄືກັນ, ຄວນຜັບໄວ້ຢູ່ກ້ອງຕຶ້ນໄມ້ໃຫ້ມີແສງແດດສ່ອງໃສ່, ຖ້າບໍ່ມີກ້ອງຕົ້ນໄມ້ ໃຫ້ເອົາຄັ້ງເປັນກອງໄວ້ຢູ່ສວນ ແຕ່ກໍ່ບໍ່ໃຫ້ຫຼາຍກວ່າ 6 ມັດ ພ້ອມຖິມດິນໃສ່ກ້ອງຫ່ອນພັນ ທີ່ຄັ້ງຕິດດິນປະມານ 5-10 ຊມ. ຫ່ອນພັນຄັດໃໝ່ໆ ປູກເລີຍກໍ່ບໍ່ດີປານໃດ. ການຫັບ ຮັກສາອີກວິທີໜຶ່ງແມ່ນເກັບໄວ້ຢູ່ສວນ ຕ້ອງການປູກເມື່ອໃດຈຶ່ງໄປຕັດໄວ້ 3-4 ວັນ ກໍ່ ນຳເອົາໄປປຸກໄດ້ເລີຍ

4. ການກະກຸມທ່ອນພັນ

<u>ທ່ອນພັນທີ່ຈະນຳມາປກຄວນມີອາຍຸລະຫວ່າງ</u> 8-18 ເດືອນ. ແຕ່ຫ່ອນພັນທີ່ເໝາະສົມທີ່ສຸດ ແມ່ນມີອາຍຸລະຫວ່າງ 10-12 ເດືອນ, ຄວນໃຊ້ 2 ໃນ 3 ສ່ວນຈາກທາງກິກຫາສ່ວນກາງຂອງທ່ອນ ພັນເພື່ອປກເທົ່ານັ້ນ. ຄວາມບາວຂອງທ່ອນພັນທີ່ ຈະປູກແມ່ນ 20-25 ຊຸມ (ມີຕາບໍ່ຕໍ່າກວ່າ 5 ຕາ). ກ່ອນພັນມັນຕົ້ນມີຕາຢາຍຕາມກ່ອນພັນ ຊຶ່ງຕາ ເປັນບ່ອນແຕກງອກອອກເປັນຕົ້ນມັນຕົ້ນ. ຖ້າໃຊ້ ຫ່ອນພັນນ້ອຍ ຫຼື ສັ້ນມີຈຳນວນຕາພຸງແຕ່ 2 ຫາ 3 ຕາ, ຫາດອາຫານທີ່ມີຢູ່ໃນຫ່ອນພັນຈະມີໜ້ອຍ ບໍ່ພູງພໍ ສຳລັບການແຕ່ກງອກ ແລະ ການ ຂະຫຍາຍຮາກ. ອີກບັນຫາໜຶ່ງກ່ອນພັນນ້ອຍ ຫຼື ສິ້ນຈະແຫ້ງຕາຍງ່າຍ. ສະນັ້ນກ່ອນພັນ ຄວນມີຈຳນວນຕາປະມານ 5-7 ຕາ ແລະ ໃຫຍ່. ການ ຕັດຫ່ອນພັນຕ້ອງໄດ້ໃຊ້ເລື່ອຍຕັດ ເພື່ອຫຼືກເວັ້ນບໍ່ໃຫ້ ທ່ອນພັນຖືກກະຫິບ ແລະ ແຕກ. ການຕັດແມ່ນໃຫ້ຕັດຊື່ ຈະໃຫ້ສິນສະລິດດີກວ່າ

ບົດແນະນຳກ່ຽວກັບມັນຕົ້ນ 2



ການຄັດເລືອກພື້ນທີ່, ການກະການດິນ, ຮູບແບບການການດິນ ແລະ ວິທີການປູກ

ชุวบชุวุริโดย: ลาอท่าอ ย้องปี - สูบกั๊บกอำเภษสีกำ เลลช่อมสากิบ (CIAT)

กอกสภ้ไดย: สับขอสิบ กับขอวิว สอง สายของ อุดขอจิก - สงกาบับ กับกล้าวอสิก่า สอง ป่าไปสต่อลาก (NAFRI)



ພື້ນທີ່ຄວນເປັນດິນໂນນ ຫຼື ບ່ອນທີ່ບໍ່ມີນ້ຳ

້ຂັງເພື່ອປາກມັນຕົ້ນ ຈຶ່ງໄດ້ຮັບຜິນດີ.

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ຂໍ້ມູນເພີ່ມຕິດຕໍ່:

ການໃຊ້ຈິກຂຸດຂຸມປູກ, ຜິນຜະລິດຂອງມັນຕົ້ນອາດຈະຕ່ຳກວ່າ ແຕ່ບໍ່ໄດ້ລົງຫຼືນຫຼາຍ ຖ້າເປັນພື້ນທີ່ດິນຄ້ອຍຊັນ ການກຸງມດິນແບບບໍ່ໄຖ ການເຊາະເຈື່ອນຂອງດິນກໍ່ຫຼຸດລົງ. ການນຳໃຊ້ລົດໄຖໃຫຍ່ກຸງມດິນ ຜົນຜະລິດຈະສູງກວ່າ ன ແຕ່ໄດ້ລົງທຶນຫຼາຍ ອີກບັນຫາໜຶ່ງ ການໃຊ້ລົດໄຖກຸງມດິນອາດ ເຮັດໃຫ້ຂຶ້ນໜ້າດິນແໜ້ນ ຖ້າບໍ່ຍຶກຄູ. ການບຸກເຍີກດິນໃນຟື້ນ ທີ່ໃໝ່ທີ່ນຳໃຊ້ກົນຈັກໃຫຍ່ ຕ້ອງລະວັງເວລາເຄື່ອນຍ້າຍ ຕົ້ນໄມ້, ຕໍ່ໄມ້ອອກ, ພະຍາຍາມຮັກສາຊັ້ນດິນປູກດັງບໍ່ໃຫ້

ວິທີການກະການດິນ: ໂດຍທີ່ວໄປແລ້ວ ການຫຼາມດິນສາມາດນຳໃຊ້ຈິກ ຫຼື ລົດໄຫ, ການຫຼາມດິນດ້ວຍ

ເອົາອອກຈາກພື້ນທີ່ ເພາະຈະເອົາຝູ່ນອອກໄປນຳ. ສຳລັບ

ພວກເສດພຶດທີ່ຕົກຄ້າງແມ່ນໃຫ້ໃຊ້ລົດໄຖ, ໄຖຖົມ ໂດຍໄຖເລິກ 20-30 ຊຸມ ເພື່ອຖົມໃຫ້ພວກເສດພຶດຕ່າງໆ ເພິ່າເປັນຜຸ່ນ. ການໄຫຄັ້ງກຳອິດ ຖ້າເປັນດິນບຸກເບີກໃໝ່ໃຫ້ໃຊ້ຈານໄຖ 3 ຈານ, ຕາກດິນໄວ້ປະມານ 7 ວັນ ແລ້ວ ໃຊ້ຈານໄຖ 7 ຈານ ໄຖຄັ້ງທີ່ 2. ການຍຶກຄຸແມ່ນໃຫ້ຖ້າຮອດບາມປູກຈຶ່ງຍຶກ, ຍຶກຄູແລ້ວກໍ່ເລີ່ມປູກເລີຍດິນຈຶ່ງບໍ່ ແຂງ, ສິນສະລິດກໍ່ດີ.



 ຮູບແບບການການດິນ: ດິນທີ່ຈະປາມັນຕົ້ນຄວນໄດ້ຮັບການກະການໃຫ້ລະອາດກ່ອນການປູກ. ການກາມດິນໄດ້ແບ່ງອອກເປັນ 3 ວິທີຫຼັກຄື: ວິທີກາມແບບພາງ, ວິທີກາມແບບຍົກຄູ ແລະ ແບບເຮັດເປັນ ຮ່ອງ. ໂດຍຂຶ້ນກັບສະຫາບຂອງພື້ນທີ່: ສ່ວນດິນຄ້ອຍຮັບ ແລະ ດິນໄນນສາມາດໃຊ້ວິທີກາມດິນແບບພາງ ໂດຍບໍ່ຈຳເປັນຍຶກຄູ ຫຼື ກຸງມແບບຍຶກຄູກໍ່ໄດ້; ດິນພຸງງ (ເຂດຮ່ອມພູ) ຄວນຈະກຸງມດິນ ໂດຍຍຶກເປັນຄູໃຫ້ມີ ລະດັບສາກວ່າພື້ນດິນປົກກະຕິ ຫຼື ມີເງື້ອນ ໂຂສາມາດເຮັດເປັນຮ່ອງເພື່ອຫຼຸດຄວາມສ່າງກ່າວກັບບັນຫານ້ຳ ≥ງ. ຍິກຄູໃຫ້ມີໄລຍະຫ່າງລະຫວ່າງແຕ່ລະຄຸ 1.2 ແມັດ.

4. ວິທີການປກ

້ ໂດຍທີ່ວໄປແລ້ວ ມັນຕົ້ນເຄີຍປູກດ້ວຍ 3 ວິທີຄື: ປູກນອນ, ເນິ້ງ ແລະ ປູກຕັ້ງ.

ວິທີປຸກແບບນອນ: ແມ່ນສາມາດຂຸດເປັນຊຸມ ຫຼື ເຮັດເປັນຮ່ອງເລິກປະມານ 5-10 ຊຸມ, ວາງທ່ອນພັນລົງລວງນອນແລ້ວ ຈີມດິນໃສ່. ປຸກນອນເລິກປະມານ 5 ຫາ 10 ຊມ. ວິທີການປຸກແບບນອນນີ້ ຈະເປັນຫົວຢູ່ຕື້ນກວ່າການປຸກແບບເນິ້ງ ແລະ ແບບຕັ້ງ. ແຕ່ການປຸກແບບນອນໃຊ້ແຮງງານ ແລະ ເວລາຫຼາຍກວ່າ.

ວິທີປູກແບບເນື້ອ: ປັກຫ່ອນຫັນລົງໄປໃນດິນ 2/3 (2 ສ່ວນລົງໄປໃນດິນ ແລະ ເຫຼືອ 1 ສ່ວນຢູ່ເທີງໜ້າດິນ) ແລະ ອຸງງໄປເບື້ອງໜຶ່ງ. ສ່ວນຫຼາຍມັນເປັນຫິວຢູ່ເບື້ອງ ດງວ ແລະ ມັກລົ້ມລົງ.



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ໂຄງການ ຄົ້ນຄວ້າ ລະບົບການຜະລິດ ແລະ ການຕະຫຼາດ ມັນຕົ້ນ

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ວິທີປູກແບບຕັ້ງ: ປັກທ່ອນພັນລົງໄປໃນດິນປະມານເຄິ່ງໜຶ່ງ. ປູກວິທີນີ້ ຈະງອກໄວ, ເປັນຫົວ ຫຼາຍ ແລະ ເລີກກວ່າວິທີປຸກນອນ ແລະ ປຸກເນິ້ງ.

ການປູກແບບນອນແມ່ນສາມາດຂຸດເປັນຂຸມ ຫຼື ຂຸດເປັນຮ່ອງເລິກປະມານ 5-7 ຊມ, ວາງ ຫ່ອນພັນລິງແລ້ວ ຄິມດິນໃສ່.

> ພັນກ່ອນປູກ; 3. ຖ້າກ່ອນພັນມີເພັບແປ້ງໃຫ້ແຂ່ປາຂ້າເພັບ ກ່ອນປກ.



 ສວນມັນຕົ້ນທີ່ບຸກເປີກປູກໃໝ່ ຫຼັງການເກັບກູ້ມັນຕົ້ນ ບໍ່ຄວນບ້າຍສິ່ງເສດເຫຼືອຈາກມັນຕົ້ນ ແລະ ເສດ ພືດອື່ນໆ ອອກຈາກສວນ, ໃຫ້ປະໄວ້ຢູ່ໃນສວນ ແລະ ບໍ່ໃຫ້ຈູດຖິ້ມ. ເວລາໄຖເທື່ອຫໍາອິດກໍ່ໃຫ້ໄຖຖິມເລີຍ ເພື່ອ ໃຫ້ເສດພືດເຫຼົ່ານັ້ນເນົ່າເປັນຜຸ່ນ. ພື້ນທີ່ບຸກເປົກໃໝ່ນີ້ບໍ່ຈຳເປັນໃສ່ຜຸ່ນເຄມີ.

. ສວນມັນຕື້ນທີ່ປກຕໍ່ເນື່ອງໄດ້ຫຼາຍປີ



ຄວນມີການປັບປຸງດິນ: ຫຼັງການເກັບກູ້ມັນຕິ້ນກໍ່ຕ້ອງຮັກສາສິ່ງເສດເຫຼືອຈາກມັນຕິ້ນ ແລະ ເສດພືດອື່ນໆ ປະໄດ້ປູ່ສວນ ບໍ່ ຕ້ອງເອົາອອກຈາກສວນ ຫຼື ງດຖິ້ມ ແລະ ຄວນຫາຝຸ່ນຄອກ (ຂີ້ງິວ, ຂີ້ຄວາຍ ຫຼື ຂີ່ສັດປະເພດອື່ນ) ໄປໃສ່ສວນມັນຕິ້ນຕື່ມ ໃນອັດຕາປະມານ 5-10 ໂຕນ / ຮຕ ກ່ອນໂຖເທື່ອທຳອິດ ຫຼື ໃສ່ກ່ອນໂຖເທື່ອທີ່ 2 ເພື່ອຄືນຄວາມສິມດູນຂອງປຸ່ນໃຫ້ດິນ (ພື້ນທີ່ປູກ). ນອກນຈາກນັ້ນ ກໍ່ສາມາດປູກພືດຕະກຸນຖິ່ວ ປະໄວ້ປະມານ 45 ວັນ ແລ້ວໄຖຖິມເພື່ອໃຫ້ເນົ້າເປັນຜູ່ນ.



ໄດ້ຫຼາຍໆປີກໍ່ຕາມ

ການໃສ່ປຸ່ນເຄມີ; ໃສ່ເທື່ອທຳອິດ ແມ່ນໃສ່ພາຍໃນ 1-2 ເດືອນ ຫຼັງຈາກປູກ, ໃຫ້ໃສ່ປຸ່ນສຸດ: 15-5-35 ຫຼື ປຸ່ນສຸດ: 12-6-33. ຖ້າບໍ່ມີຜຸ່ນທີ່ກ່າວມານັ້ນສາມາດໃຊ້ຜຸ່ນສຸດ: 15-15-15 ທີ່ມີຂາຍໃນຕະຫຼາດທົ່ວໄປແທນ ໂດຍໃສ່ໃນອັດຕາ 200-300 ກິໂລ / ຮຕ ຕາມຄວາມແພາະສົມຂອງດິນ. ຖ້າປູກໄດ້ຫຼາຍປີແລ້ວ ການໃສ່ປຸ່ນເຄື່ອທີ່ໜຶ່ງໃຫ້ໃສ່ສຸດ: 25-7-7, ໃນອັດຕາ 150-200 ກິໂລ / ຮຕ ຕາມຄວາມແພາະສົມຂອງດິນ. ຫຼັງຈາກປກໄດ້ 3-4 ເດືອນ ມັນຕົ້ນເລີ່ມລຳຫຼົວແລ້ວ ຈຶ່ງໃສ່ບໍ່ນຫຼືອທີ່ ສຳລັບເທື່ອທີ່ 2 ແມ່ນໃສ່ປຸ່ນສຸດ: 00-00-60 ຫຼື ສຸດ: 15-5-35 ໃນອັດຕາ 150-200 ກິໂລ / ຕຮ. ການໃສ່ປຸ່ນເທື່ອທີ່ທຳ ອິດແມ່ນເພື່ອເລັ່ງໃຫ້ມັນຕົ້ນມີການຈະເລີນເຕີບໂຕທັງອາກ, ລຳຕົ້ນ ແລະ ໃບ. ການໃສ່ຜຸ່ນເຄື່ອທີ່ 2 ແມ່ນເລັ່ງໃຫ້ ຫິວມັນຕົ້ນ ຈະເລີນເຕີບໂຕ, ເວົ້າການສະສົມຫາດແບ້ງ, ເພື່ອເພີ່ມນ້ຳໜັກ ແລະ ເພີ່ມເປີເຊັນຫາດແບ້ງ.

ນໃສ່ບຸ່ນທີ່ພຸງພໍ ແລະ ສີມດູນ, ຈະສາມາດຮັກສາຜິນຕະລິດສູງ ຢູ່ໃນລະດັບເກົ່າ ເຖິງແມ່ນຈະປູກມັນຕິ້ນຢູ່ໃນພື້ນທີ່ເກົ່າ

4. ວິທີໃສ່: ໃຫ້ຂຸດຂຸມທ່າງຈາກຕົ້ນປະມານ 10 ຊຸມ, ເອົາຝຸ່ນໃສ່ແລ້ວຖິມດິນຄືນ.

ໝາຍເຫດ: 1). ຖ້າປູກມັນຕົ້ນຕໍ່ເນື່ອງຫຼາຍປີໃນພື້ນທີ່ເກົ່າ ດິນຈະຂາດທາດອາຫານ K ເພາະຫາດອາຫານນີ້ອອກໄປນຳຫິລມັນຕົ້ນໃນປະລິມານທີ່ຫຼາຍ.

ຂໍ້ມູນເພີ່ມຕິດຕໍ່: ໂຄງການ ຄົ້ນຄວ້າ ລະບົບການຜະລິດ ແລະ ການຕະຫຼາດ ມັນຕົ້ນ Tel: +856-21-770 090 + 856-20-2240 7957 E-mail: I.thao@cgtar.org agmail.com + 856-20-9528 5588 khantha yon gp(

 ມັນຕົ້ນແມ່ນຂ້ອນຂ້າງລະອຸງດອ່ອນຕໍ່ການໃສ່ຢຸ່ນ ຜົນ, ໂດຍສະເພາະແມ່ນຫາດອາຫານ N. ເຂົ້າຈະສິ່າອິນ ເຮັດໃຫ້ມີ ໃບຫຼາຍ ແລະ ຕ້ອງການໃຊ້ຫຼາດອາຫານບໍ່ໃນ ໃບ. ສະນັ້ນ, ຈະກະທິບຕໍ່ການຂະຫຍາຍຕິວຂອງທີ່ວ.

ບົດແນະນຳກ່າວກັບມັນຕົ້ນ 4

CIAT 50

ໝາຍເຫດ: 1. ການປຸກແບບຄັ້ງ ແລະ ເນິ້ງ ຄວນສັງເກດ ເບິ່ງຕາຂອງກ່ອນພັນກ່ອນປູກ, ບໍ່ຄວນປູກກັບດ້ານ (ປິ່ນຕາ ໃສ່ດິນ); 2. ບ່ອນທີ່ມີເອື່ອນໄຂໃຫ້ໃຊ້ຢາເລັ່ງຮາກແຂ່ຫ່ອນ

Training Manual



Harvest field days and training

Additional training conducted in 2018 with farmers and DAFO

Lao training manual download around 2,000 times from Lao44 website

| Activity | Xayaboury | Bolikhamxay | Total |
|--|-----------|-------------|-------|
| Farmers participate formal and informal training (training and fieldays) | 177 | 150 | 327 |
| Farmers participate field work (establish trials and demonstration trials) | 121 | 132 | 253 |
| Policy dialoge in local level | 49 | 52 | 101 |
| Policy dialoge in national level | 52 | | 52 |
| Total particpants | 732 | | |



New tools to visualise impact during field days



Harvest field days held in each District late 2019 and early 2020











Calculation of benefits at different scales



- 1. Impact of farmer incomes
- 2. Impact on root availability for processors
- 3. Impact on income at district level
- 4. Impact from potential levy system

Multi-stakeholder engagement at local and national scale



Sharing results with new development projects: USDA-Winrock



Helping to create a southern learning hub

Constraints identified at National Meeting

- **1**.High **cost of transportation**. Eg. Adds **85 US\$ per ton** of the Thai price when exporting from Champasak
- 2. There are many weight and goods **checkpoints and fees** which are the barriers of commercial extension in the country.
- **3.2+3 model of extension has issues** with private sector not able to **access capital** to support smallholders and **side selling from** farmers
- **4.Market uncertainty**. Need for market intelligence on cassava demand and supply in the neighboring countries in order to avoid the oversupply of the production.
- 5. The cassava stems are not enough especially in the southern. Cannot import due to disease risk. Need to **develop domestic seed system**
- **6.Incursion into forest frontier**. Need to follow agricultural development strategy which indicates the places for cassava production.

Support for industry to support extension

- The **farmers have limited knowledge** on fertilizer application, so there is the need for demonstration of using and not-using fertilizer in the main cassava production areas to compare the results.
- Some people concern about the using of fertilizer which might affect the quality of the production and should be followed the agreement of ASEAN on chemical residues before export. **Mixed policy messages.**
- The significant thing is that it might be good if private sectors, especially exporters or factories, can support farmers through the experiment or demonstration on integrated crops such as cassava + peanut, cassava + bean, or trials of use and non-use fertilizer. The good practices should be expanded to other areas.

Farmer and industry associations

- Strengthening farmers' groups in order to gain more advantage on getting technical and input supports, price information and payment method, and disease and pest information and management.
- **Private sectors associations:** such as traders and factories also need to form as a group in order to strength collaboration among all value chain.
- In order to achieve sustainable cassava production, there is the need for specific policy and regulations for cassava starting from *zoning*, allocation, cultivated registration, establish farmer groups and private sector groups. Without these things, there would be conflict among traders and farmers. This also will lead to the easy implementation of local authorities.
 - BUT REDUCES COMPETITION AND POTENTIALLY PRICE

National Lao Cassava Association

- Factory/exporters (foreign investors) export Lao cassava by using other countries' logos. There should be our own Lao cassava brand/logo. Raise profile of Lao Cassava Industry
- Before establishing Lao Cassava Association, determine the role and how the association has a positive impact on farmers, traders and exporters. If just only the form of organization which collect only fees from members, it is not sustainable.
 - It is a good idea to start from farmer groups, trader groups, and exporter groups with getting the facilitation and support from local governments in order to collaborate among the value chain.

Partnership with fertiliser importer??



- Change in responsibility of staff within the company
- "Organic" production / Green Cassava low interest in some districts
- •

Lead firm – monopsony working with DAFO

Lead firm – monopsony working with DAFO (example from Paklai)

There is 15,000 ha of cassava in Paklai....even at 25% adoption

There is 15,000 ha of cassava in Paklaiat 25% adoption

Previous view was little naïve

Continue to have this discussion

- Both DAFO and Companies interested in establishing the rapid multiplication tunnels
- 2. Central location for tunnels at District level
- 3. Clean material provided to farmer/village groups
- 4. Continue to demonstrate other good management practices at those satellite sites

Lao Cassava Association formed

The Lao Cassava Association (LCA) was established in 2019

Champasak, Salavan and Sekong Provinces

Lao Cassava Development platform

The Official Opening of "Future Stems"

&

Master Training Course on "Sustainable Cassava Production and Farmer Participatory Research"

Australian Government Australian Centre for International Agricultural Research

FUTURE STEMS

was officially opened by

H.E. Dr Phouang Parisak Pravongviengkham Vice Minister, Ministry of Agriculture and Forestry, the Government of Lao PDR

H.E. Mr Jean-Bernard Carrasco Australian Ambassador to the Lao PDR

> on 19th March 2020

'FUTURE STEMS' is joint initiative between the CIAT and NAFRI to develop a sustainable cassava seed system in Lao PDR to improve the livelihoods of smallholder cassava farmers and ensure a profitable cassava sector into the future. The infrastructure has been supported by CIAT and the Australian Center for International Agricultural Research (ACIAR)

'FUTURE STEMS' LAO CASSAVA SEED SYSTEM

Evaluation

Capture impact to date

1. Use of Bennet's Hierarchy Framework

- Method
 - Interview all households that hosted trials
 - Some farmers that attended training
 - Additional farmers from the same village
 - Discussion with DAFO
 - **Discussion with Private Sector**

Response from DAFO

- High turn over of district staff at Leadership and field level
- All districts recognise importance of cassava – although often under report the area
- 3. Looking for opportunities to engage with private sector – but view of project team is this is a facilitated process and unlikely to happen without some external support

Structured questionnaire with farmers

Reaction to fertiliser demonstrations

| | Bolikan | Viengthong | Paklai | Kenthao | Total |
|--|---------|------------|--------|---------|-------|
| Apply fertiliser last year | 15% | 5% | 5% | 5% | 8% |
| Understand NPK | 5% | 5% | 5% | 15% | 8% |
| Answered that they knew recommended fertiliser | 10% | 5% | 15% | 15% | 11% |
| Had applied fertilizer already for current season | 20% | 0% | 0% | 5% | 6% |
| Interested in applying like demonstration | 40% | 30% | 50% | 45% | 41% |
| Why not (don't have money) i.e. already spent | 50% | 15% | 30% | 20% | 29% |

Preliminary findings – price fluctuations

Scenario analysis didn't capture the upside risk with 550 LAK/kg used as high price

Land degradation remains a serious issue

| Perceived yield trend | Bolikan | Viength ong | Paklai | Kentha o | Total |
|-----------------------|---------|----------------|--------|-------------|-------|
| Decrease | 70% | 35% | 70% | 80% | 64% |
| Increase | 25% | 20% | 5% | 20% | 18% |
| Constant | 0% | 35% | 25% | 0% | 15% |
| NA | 5% | 10% | 0% | 0% | 4% |

Weeds, soil fertility, pest and disease

Increased knowledge about CWBD

| Knowledge of Disease | Bolikan | Viengtho ng | Paklai | Kenthao | Total | |
|---|---------|----------------|--------|---------|-------|--|
| Recognize CWBD in the field | 90% | 80% | 70% | 90% | 83% | |
| Recognise CWBD in harvested stems | 95% | 80% | 65% | 70% | 78% | |
| Have CWBD last year | 100% | 80% | 70% | 90% | 85% | |
| Remove CWBD infected plants | 60% | 50% | 15% | 25% | 38% | |
| Check stems before planting | 100% | 80% | 55% | 80% | 79% | |
| Heard of CMD | 0% | 10% | 5% | 10% | 25% | |
| Know symptoms of CMD | 0% | 5% | 5% | 0% | 0% | |
| Main impact was farmers doing positive and negative selection | | | | | | |

Rouging of disease plants less common

Initial impact of COVID-19 on cassava farmers

| | Bolikan | Viengthong | Paklai | Kenthao | Total | |
|-----------------------------------|---------|------------|--------|---------|-------|-------------------------|
| Aware of COVID | 100% | 5 100% | 100% | 100% | 100% | |
| Impact Cassava | 0% | 5 10% | 5 10% | 5% | 6% | Can't go to the field |
| Impact of agricultural production | 0% | 5 10% | 0% | 0% | 3% | |
| Impact agricultural sales | 5% | 5 25% | 0% | 0% | 8% | Factory stop purchasing |
| Imact wages/salaries | 40% | 5 25% | 5% | 20% | 23% | Can't earn wages |
| Impact remittances | 10% | 5% | 0% | 20% | 9% | |

Annual income by source (baseline)

Concerns that unharvested fields are a reservoir for pest and disease

Conclusion

- 1. Continue to develop partnerships between local government and local processors in new ACIAR project for multiplication of clean stems and new varieties
- 2. Need to work on access to capital and savings for farmers to change practices
- 3. Need to engage development partners to support extension limited budget of DAFO and unlikely to happen without external support
- 4. Strengthen multi-stakeholder platform
- 5. High level engagement with MAF and MOIC