

Natural Farming

Out Scaling of Natural Farming



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PREFACE



Mizoram hi tlangram lo nei mi kan ni a, lo hal a thlai kan chin hnu a, ram thar vat leh thin kan ni a, lei tih thatna lampangah hian hma kan la manglo tlat mai a, hetiang zela kan kal dawn chuan, kan ramah hian thlai khamkhawpa thar a la harsa thuai thei a ni. Hemi anih avang hian damdawi tel lova lo neih- Natural Farming kan tih mai hi kan lo neih thin dan nen danglam tam silova, kan lo huam chhung atanga kan siam theih, lei tihaa tinungtu leh senso tlem tak, thlai tha tak thar theihna hi zirchiangin, kan loneitu te hian lo hmang tangkain lo hlawkpui se ka ti hle a. He lehkhabu Natural Farming Chanchin Kimchang ziahna bu hi chhuah a lo ni ta a ni. Mitin in awlsam tak an hriatthiam leh zawm mai theih tura ziah a ni a, chhiartu ten hlawkna an chan ngei theih nan duhsakna ka hlan e.



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About the Author



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Natural Farming

A chhunga thu awmte:

Sl. No.	Thupui	Phek zat
1.	Natural Farming chanchin kimchang	3 - 6
2.	Jeevamrit siam dan leh a thatna te	7 - 9
3.	Bijamrit siam dan leh a thatna te	10 - 13
4.	Thlai bul rih vûr chungchang	14 - 16
5.	Thlai chin pawlh dan tha	17 - 18
6.	Thlai natna enkawl dan	19 - 21
7.	Natural Farming hnuaia lo neitu hlawhtling chanchin	22 - 24
8.	Mizoram leh Natural Farming	25 - 26
9.	Rreferences	27

Natural Farming

A chungga lem awm te:

SI No.	Thupui/ Figure number	Phek zat
1.	Jivamrit a pawlh te	7
2.	Jivamrit siam dan	8,9
3.	Bijamrit siam dan	11
4.	Awareness literature sem chhuah	11
5.	Bijamrit siamna atana mamawhte	12
6.	Thlai bul rih vûr	14
7.	Natural Farming Training	15
8.	Brahmastra siam na atan hnah hman te	21
9.	Mizoram map leh Natural Farming project awmna district te	25

Natural Farming

Natural Farming chanchin kimchang:

Natural Farming kan tih hian Pathianin mihring ten leilung kan luah dan tura a duan ang thei tur bera lo neih hi a ni a. Damdawi chi hrang hrang industry lian tak taka an siam chhuah te hmang lova, khuarela kan hmuh theih te hmanga thlai leh leilung enkawla kan lo neihna senso tih tlem hi a tum lian ber a ni. Khuarel thil hmanga thlai hrisel thar chhuaha, mihring leh leilung hriselna tih thatna kawngah awmze neiin nghawng a nei a. Khuarel thil kan neih nungchâ leh ramngaw thilnung tinrêng te hian tangkaina an neia, mihring nen inkungkaihna lian tak kan nei a, mihring te hian kan phawkchhuak zo lovin kan ti chereu mai zawk thin a. Natural Farming thil tum ber erawh khuarel nena thawhdun a ni si a, hemi chungchang hi kimchangin kan tarlang dawn a ni. Natural farming hi “Engmah thawk lova Lo neih” ti tein an sawi thin a, lo neitu chu tanpuitu hna thawktu a ngaih niin, hna pui thawhsak tu chu khuarel (nature) zawk hi a ni a. He lo neihdan ah hian lo a tlem thei ang bera leh a kengtel a, rannung hlo/tur leh lei thatna damdawi te hman ani lo.

Natural Farming kan hmehhriat na hmasa ber chu Japan lo neitu pakhat Masanobu Fukuoka hnen atangin a ni a. Ani hian Japan ramah lo ching chhuak hmasa in kum 1975 daih tawh khan alo larpui tawh a ni. Fukuoka hian damdawi ten leilung an tih dâk dan leh hetiang hmanga thlai chawm mihringin kan ei atanga kan hriselna thlenga alo chhiat pah theihdan hi zir chiangin pumpelh dan a zawna lamah Natural Farming hi a lo duang chhuak ta a ni. Fukuoka hian damdawi leh lei thatna hmaga lo neitu te tharchhuah zat Natural Farming zawm chung hian a tharchhuak a, nimahse a loa leilung te da ve si lovin a kum telin a thain a nung telh telh zawk si a ni. Natural Farming awmze rîl zawk chu pawnlam atanga kan leilet emaw kan loa kan lakluh reitak hnuah kan leilung ti chhia a, ti dâ thei tu tih tlema, thlai tam tak thar thei tura leilung tih hrisel a ni. India ramah pawh 1990 bawr vel khan Natural Farming hi mumal takin Subhash Palekar an a kalpui tan a. India ramchhung ngeia kan hmuh theih tein thlai chaw leh lei tih thatna te a siam chhuaka, Zero Budget Natural Farming (ZBNF) tih hmung put tirin kum 2006 khan India ram President hnen atangin Padma Shree – mipui nawlpuiin India rama chaimawina lawmman kan dawn theih sâng ber alo dawn pah hial tawh a ni. ZBNF ah chuan leilung tih hrisel nan leh tihthat na atan lei hrik tha kan tih mai (Soil microbes) te anlo pun theih nan Jeevamrit hman te a ni a. Beejamrit- thlai chi chiahna te, thlai

Natural Farming

bul rih vur that te leh lei tih thawla tih mur that te a tel a ni. Khawtual hnim leh bawngzun hmanga siam thlai ei chhetu rannung hlo siam chhuah te a rawn hmuchhuak bawka, Subhash Palekara thupui kenkawh ber chu leilunga hrik tha (soil microbes) te him thei ang bera tihpun a ni. Heng lei hrik tha (microbes) te hian thlai chawtha (nutrients) te thlai ten awlsam taka anlo hîp luh theih turin an lo sawngbawl danglama. Thlai lakluh theihloh (unavailable form) kha thlai hman tângkai theih turin (available form) ah lo thlak danglamin thlaiin an lo thatpui ta thin a ni. Hetiang thleng thei tur hian leilunga hrik thate inthlahpun tir angaia, anlo inthlahpun theih na atan hian chawtha kan pek an ngai a, Natural Farming ah hian Jivamrit, Bijamrit, thlai bul rihvur that te hmangin kan hmu thei dawn a ni. Natural Farming Subhash Palekara chinchhuah hnuaiah hian fung pali pawimawh tak tak an awma, chungte chu a hnuaia kan tarlante hi an ni:

1. Jivamrit (lei thatna)
2. Bijamrit (thlai chi chiahna)
3. Thlai bul rihvur that (mulching)
4. Lei tih mur that (soil aeration)

A chungka kan tarlante khi uluk tak leh dik taka kan hman chuan kan leilung alo hriselin damdawi manah pawisa tam tak sen ngai tawh lovin thlai hrisel tam tak kanlo tharchhuak thei tawh anga. Kan leilung pawh a kum telin alo nung telh telhin alo hrisel telh telh anga, lo neitu ten leilung atanga hlawkna dik tak kan lo seng thei dawn a ni. Natural Farming zawm that êm êm na pakhat chu kan chenna khawvel thing leh mau, tui leh leilung te tân boruak tha leh hrisel kan hnutchhiah hi a ni a, keini tan chauh ngaihtuah lova, kan thlah lola awm zel tur te hmakhua kan ngaihtuah (sustainable development) hi kan tih mâkmawh a ni.

Natural Farming hi sawrkar lâipuiin a ngaipawimawh êm êm a. Loneitu te tan sum tlênte sêng chungka thlai tha tak thar theihna kawng hi an duhsakin duhthawh takin loneituten a thatna an seng theihnan hma anla mêk zel a ni. Natural Farming hi Niti Aayog hnuaia Paramparagat Krishi Vikas Yojana (PKVY) hnuaiah Bhartiya Prakritik Krishi Paddhati Programme (BPKP) hmangin a enkawl a. Bhartiya Prakritik Krishi Paddhati Programme (BPKP) hian loneituten hmasang atanga anlo inhrilh chhâwn (indigenous knowledge) hmanga thlai enkawl dan leh leilung enkawl dan te chawisân leh pawnlam atanga pawisa chawia kan lei damdawi te theihtâwpa tih tlêm a ni a. Lo huam chhung vêka kan leilung chawtha pek leh tih hrisel dân kawng kawhhmuh hi a thil tum bûl ber a ni a, hnim ro leh buhpâwl hmanga thlai

Natural Farming

bul rihvûr te, thlai chi hnih aia tam mumal leh awmze nei tâka chîn pawlh te, bâwngzun leh bâwnggek hman țangkai te, hmâsang ata kanlo hman tawh hnimhnah țangkai hmanga thlai leh leilung enkawl te a ngaipawimawh êm êm a ni.

He BPKP program hi India rama state lian hrang hrang – Andhra Pradesh, Karnataka, Himachal Pradesh, Gujarat, Uttar Pradesh leh Kerala ah te an kalpui tawh a. Loneitu hlawkna tel pawh țahnem tak an awm tawh a ni. Mithiamten an zirchianna atanga kan hmuh angin BPKP hian nghawng țha tam tak a neia, chung zingah chuan thlai tharchhuah punna te, tui renchem leh hlawk taka hman te, leilung hrisel te an ni a. Sum sen tlema tharchhuah țha si leh thingtlang mite tana eizawna kawng tipungtu ah an hmu a ni.

NITI Aayog leh Ministry of Agriculture and Farmers Welfare te țangkawpin Natural Farming tihpun lehzualna atan hian thluak nasa takin an sêng a. India ramah hian damdawi tel lova lo/leipui enkawl tawh mi maktaduai 2.5 an awm tawha chhût a ni a, tun atanga kum nga ah chuan ram hectare nuai 20 vel huam tawh turah an ngaia, chung zinga ram hectare nuai 12 chu BPKP hnuai mi anih tur thu an tarlang bawk a ni. Tin, Natural Farming an zawmna ram hi tun dinhmunah hectare Maktaduai 4.09 lai niin, heng ram 8- Andhra Pradesh, Chhatisgarh, Kerala, Himachal Pradesh, Jharkhand, Odisha, Madhya Pradesh leh Tamil Nadu te hi an ni.

Natural Farming țhatna te:

- Thlai thar turin pawisa engmah sên angailo, kan mamawhte mahniin kan siama, damdawi man kan hlep.
- Thlai thar tura tui kan mamawh zat zâa 10 chauh hman anga chhût a ni.
- Bâwng pakhat hian bâwnggek kg 10 atanga 12 a pechhuak theia, heihi thla khat chhunga ram țin 30 enkawl na atan a tâwk a ni.
- Natural Farming zawm veloh na leilet aiin a zawmna leilet ah thlai thar a tam zawk.
- Lei thatna damdawi leh thlai eichhetu rannung hlo lei angaihloh avangin pawisa sen atlem hlea, engtham mah sen anilo.
- Natural Farming zawmna lo/leilet te hian tuilian leh khawkheng te an tuar fei zawk tih hmuh a ni.

Natural Farming

Natural Farming zawm kawnga harsatna awm thei te:

- Damdawi hmanna aiin mihring tha angai hnem zawk.
- Bâwngek leh bâwngzun mamawhna atam.
- Natural Farming hmanga tharchhuah tehi damdawi hmanga tharchhuah te aiin a man a to bîk lo.
- Lei hrik tha (soil microorganisms) punna zât te leh aþhâtna te chiâng taka laboratory a test na fumfe taka kalpui ala awmlo.
- Thlai chi tha leh thar tam scientist te siamchhuah hman phal a ni lova, kan thlai chi neihsa te hman tur atih a ni a, hei hian mihring pung zêl te a chawm tawk lovang.
- Damdawi aia kan siamchawp rannung hlo hman hi rannung tamna ah a tha tâwklo.
- Zo bawng kher hman angai.
- Lei thatna (jivamrit) leh thlai chi chiahna (bijamrit) te hi dahthat rei theih ani lova, siam sa dawra lei tur a awmlo bawk.

Outscaling of Natural farming through KVKs:

Natural Farming chak taka kalpui anih theih na atan hian Department of Agriculture and Farmers Welfare, Government of India hian Project lian tak “Outscaling of Natural Farming through KVKs” zau tham takin a kalpuia. He Project hi India ram chhunga KVK 425 ah a kalpui mek a, Hmarchhak ICAR-ATARI Zone VII huam chhungah hian KVK 25 ah kalpui a ni bawka, heng zingah hian Lawngtlai KVK hi project kalpuina pakhat a ni. He project hi kum li (2022-2026) chhung kalpui tura duan a ni a. Natural Farming chungchang loneitute hnena kimchang taka hrilhfiah hi a tum a ni a. Training leh awareness program chi hrang hrang leh Demonstration te uluk taka kalpui mek a ni.

Natural Farming

Jivamrit siam dan leh a thatna te:

Jivamrit hi vai tawng thumal pahnih kaih kawp ani a, ‘Jiv’ awmzia chu ‘Nunna’ tihna a ni a, ‘Amrit’ awmzia chu ‘damdawi chawhpawlh’ tihna a ni. Nunna pe theitu damdawi chawhpawlh tiin kan let thei ang. Jivamrit hi bawngêk, bawngzun, kurtai, chana dip (besan), lei leh tui chawhpawlha siam a ni a. Leilung tiṭhaa ti nungtu (soil inoculant) atana hman a ni ber a, thlai eichhetu rannung te pawhin bawngzun a tel avangin an hua a, rannung hlo anga hman theih a ni bawk. Jivamrit siam na atan hian ni 4 atanga kar khat chauh angaih avang hian leiṭha awlsam taka siam theih a ni a, natural farming zawmtute pawhin ṭha an tiin an hman nasa hle a ni. Jivamrit siamna atana kan chawhpawlhte hi han zirchiang dawn ila;

- **Bawngêk:** Bawngêk hi hmasang atangin thlai leh pangpar pek atana kanlo hman tawh thin a ni a. Bawngêk ah hian thlai mamawh chawṭha (essential element) kan thlaiten tam tham taka an mamawh Nitrogen (N), Phosphorus (P) leh Potassium (K) te a pai hnema. Heng bakah hian hrik ṭha (effective microorganisms) te an awma, heng te hian leia chawṭha awm thlai lakluh theihloh (unavailable form) te thlaiin awlsam taka an hip luh theih (available form) turin an sawngbawl danglama, bawngêk leia pek hi a tha hle a ni.



Fig 1: Jivamrit a pawlh te

- **Bawngzun:** Zun reng rengah hian Uric acid leh Urea hi a tam thin a. Bawngzun ah pawh hian Urea thlai kan pek thin ngei te hi zaa 68 a awma, nitrogen 6.8 - 21.1 g N litre⁻¹ a kengtel bawk. Hemi bakah hian rannungin an hua a, Mineral salt, hormones leh enzymes te a keng tel bawk a ni.
- **Kurtai:** Kurtai hi a thlum a, kan tana chawṭha a ni ang bawk hian hrik ṭha te tan pawh chawṭha, anlo inthlahpun na atana ṭangkai tak a ni a. Hrik ṭha anlo pun chuan kan tui

Natural Farming

chawhpawlh kha alo ṭawih hma anga, hmantheihin alo awm thuai dawn a, leiṭha dang (compost, vermicompost) te aia Jivamrit siamchhung a reiloh chhan pawh a ni.

- **Chana dip (besan):** Chana hi thlai zûng bawk nei chi (leguminous crop) a ni a. Chana dip hian thlai mamawh chawtha protein leh vitamin te a pai hnema, calorie- 356g, protein-20g, iron 25%, folate- 101%, Thiamine- 30% te a keng a ni.
- **Lei:** Lei hum khat lekah hian hrik ṭha (soil microbes) nuai tam tak an awma. Bawngeka hrik ṭha te nen inthlahpungin thlai ṭhan ṭhat theih na atan hna nasa takin a thawk thei a ni.
- **Tui:** Thlai leh leilunga damdawi engpawh kan pek hian a kaha kah te, leh tuia chawhsawm te hian a thawk chak in a kalna turah a kal hma deuh ṭhina. Chuvang chuan Jivamrit pawh hi tui pek anga pek mai theih turin tuiah kan chawhpawlh a ni.

Jivamrit siam dan:

- Jivamrit tin khat hmun atan siam dan:

Bawngek kg 10, Bawngzun Liter 5-10, Kurtai kg 2, Chana dip (Besan) Kg 2, Lei Kg 1 leh tui Liter 200 te uluk takin kan chawh sawm anga, puan nemin kan chahsawmna bur emaw bel kan chhin ang. Nikhatah vawi hnih zing leh tlaiah kan chawh tho zel ang, hei hian hrik ṭha te a ti nung (active) leh zual dawn a ni. Ni 4 hnu ah chuan Jivamrit chu hman theih alo ni tawh ang.

- Jivamrit Hectare khat hmun atan siam dan:

Bawngek kg 25, Bawngzun Liter 12-25, Kurtai kg 5, Besan kg 5, Lei Kg 2.5 leh tui Liter 500 kan chawhpawlh anga. A chungka kan ziah ang khian kan sawngbawl anga. Ni 4 hnu ah alo hmantheih tawh ang.





Fig 2: Jivamrit siam dan

Jivamrit thatna te:

1. Thlai chawṭha a ken bakah, ei chhetu rannung leh natna lakah a veng thei.
2. Ni 4-7 chung chauh siam nan hun a duh.
3. A siamna senso hi a tlem a, awlsam taka hmuh theih vêk an ni.
4. Lei thûr a ti ziaawmin a ti mûr tha a, hrik ṭha (microbes) tangkai a ti pung.

. Jivamrit hman dan tur:

- ✓ Jivamrit ml 50-100 (thingpui in no chanve vêl) tui liter 1 ah pawlh tur.
- ✓ Liter 15 dawng bucket ah chuan Jivamrit ml 750- 1500ml (1.5L= bottle 1 leh a chanve vel) kan pawlh thin dawn nia.
- ✓ Hemi kan pawlh dal sâ hi thlai kan chinna leilungah kan leih theia, thlai hringa kah atan pawh a hman theih a ni.

Jivamrit dahṭhat theih hun chung:

Jivamrit hi kan up zawha kan hmantheih atang ni 3 chungin hmanzawh tur a ni a. Kan hmantur zat azira siam thar leh mai ṭhin tur a ni. Tin, Jivamrit hi a tuihul/ ro in a siam theih bawka, chu chu ‘Ghana-jeevamrith’ an ti a, hetah hian Jeevamrith siamna atana kan pawlh zawng zawng tui tello in kan pawlh anga, daihlimah a ro thlengin kan pho anga. Tichuan saiip ah khungin thla 6-8 chung a dahṭhat theih bawka a ni.

Natural Farming

Bijamrit siam dan leh a thatna te:

Bijamrit chu thlai chi chiahna tur tui a ni a. Vai tawng thumal pahnih ‘Bij’ leh ‘Amrit’ tih ‘Thlai chi’ leh ‘damdawi chawlpawlh’ tihna a ni. Bâwngêk, bâwngzun, chinai, lei leh tui te chawhpawlha siam a ni a, thlai a ti tiak thain, a ti thangtha êm êm a ni. Thlai chi kan tuh hian thlai tiak thalo te, a tiah hnuah thi leh daih te, thlai thang theilo te leh natna leh rannung ten an eichhiat a tam hlê thin a, hetiang buaina kan neih thin te sut kian na atan hian Natural Farming hnuaiyah Bijamrit hi siamchhuah alo ni ta a ni. Bijamrit tui hian hrîk tha kan tih mai microbes chi hrang hrang tâm tâk a pai a, thlai chi te kan tuh hmaa Bijamrit tuia kan chiah hian kan thlai ten natna an do theihnan kan puia, anlo thang tha in an duah tha bik hle tih zirchian tawh a ni.

Bijamrit hi damdawi tel lova siam a ni a, kan ei tur thlai kan tharna kawngah hian damdawi chi hrâng hrâng hmang lova Bijamrit hman hi a hriselin a thianghlim a, damdawi telh loh anihna ah leh thlai leh leilung tân athat avang hian Bijamrit hman hi India rama loneitu tam tak ten an intih hmuh mek zel a ni.

Bijamrit siam na atana kan pawlh te leh an thatna te:

- **Bawnggek:** Bawnggek ah hian hrik tangkai (microbes) chi tâm tâk an awma, heng te hian thlai chaw tha tâm tâk an pechhuak a, thlai alo tiah hnuah an chaw mamawh te a lo pe thei a ni.
- **Bawngzun:** Nitrogen – thlai chawtha a pai hmem hle (liter 1 ah Nitrogen 6.8-21.1g) a awm a, thlai natna thlentuh hrik - bacteria, fungi leh virus ten an haw bawk a ni.
- **Chinai:** Chinai hi a âl a, lei thûr tih that na atana hman thin a ni. Bawnggek hi a thûr deuh avangin chinai hian a thûrna a ti dal dawn a ni.
- **Lei:** Lei humkhat ah hian mit lâwnga hmuh theihloh hrik tha (soil microbes) tâm tâk an awma, thlai mamawh chawtha te thlai in awlsam taka an lakluh theih na atana puitu an ni.

Natural Farming



Fig 3: Bijamrit siam dan



Fig 4: Awareness literature sem chhuahna

Bijamrit siam dan:

1. Chinai kha tui ah chawh kawi tur.
2. Lei, bawngzun leh chinai kawi khi tui nen chawhpawlh tur.
3. Puanche nemin bawngêk kan fun anga kan tui chawhpawlh ah kan chiah/khâi ang.
4. Rannung te anlo luh lohnan daihlimah puanin kan khuh ang.
5. Ni hnih chung kan chiah ang, ni khatah vawi hnih- zing leh tlaiah kan chawk tho zêl ang.

Natural Farming

6. Bawnggek, bawngzun, chinai leh lei tehi kan thlaichi chiah tur zat a zir zelin kan pawlh zat a danglam hret hret a, a kg chiah tur azira siam dantur kan ziah ang hi a zawm theih a ni.

Bijamrit hman theihdân leh a thatna:

- ✓ Nursery a kan thlai tiak te kan phusawn hma in thlai zung te Bijamrit tuiyah minute 10-20 kan chiah thei. Hei hian thlai a ti hrisel in natna lakah a vengin a do theih nan a pui a ni.
- ✓ Thlai chi packet a awmsa Bijamrit a kan chiah dawn chuan silfai hmasak a tha ang.



Fig 5: Bijamrit siamna atana mamawhte

Natural Farming

Kan thlai chi chiah tur azira pawlh dan tur:

Pawlh tûr	Thlai chi kg 50 tan	Thlai chi kg 10 tan	Thlai chi kg 1 tan
Bâwngêk	2.5kg	Kg chanve	Gram 50
Bâwngzun	2.5Liter	ml 500 (thingpui no hnih leh a chanve vêl)	ml 50- (thingpui no chanve chanve leh)
Chinai	25gram	5gram	5mg
Lei	25gram	5gram	5mg
Tui	10 liter	Liter 2	200ml (thingpui no1)

Natural Farming

Thlai bul rih vûr chungchang:

Thlai kan chin reng reng hian a bul kan rih vûr that chuan a lo hrisel deuh bik thin tih chu kan hmu tawh awm e. Thlasik a thlai kan chin pheii chuan ruahtui kanlo dawnglo rei thin a, hetiang hunah hian zan dai far te hi thlai tui atan kan hman tangkai a ngai hle thin. Hetianga khuarel in kan thlai chin te tui alo pek hi entin nge tha lehzuala kan hman anga, thlai tui mamawh kan phuhruk theih ang tih hi zawhna pawimawh tak a tling. Hetah tak hian thlai bul rih vur hi alo tangkai dawn a ni. Thlai bul kan rih vur hian, dai far te boruaka tui hu anga a thâmrâl leh mai tur alo dang a, thlai bul nisa in a êm tur alo dangin alo veng a, thlasik chung leh tui kan pek theihloh chung pawhin kan thlai ten tui an mamawh zât anlo hmu thei dawn a ni. Thlai bul rih vûr dan hi chi hrang hrang a awm a, chutiang bawkin a rih vur na atana hmanrua kan hman theih pawh a danglam a. Kan awmna a zirin kan chhehvela awlsam taka kan ban phak thlai rih vur na tur chi hrang hrang a awm theia, chung zinga langsar zual te chu:

- Buhpawl
- Vaimim kung ro
- Hnim ro -huan sam na hnim ro
- Ramngaw lei chung hâng
- Changêl
- Thing tang ro
- Fu khehna
- Badam kawr
- Favai
- Thing nawrna phuai
- Kuhva khehna kawr
- Thing eh na nawi



Fig 6: Thlai bul rih vur

Engtiangin nge kan rih vur ang?

- Thlai chi kan theh hnu ah tui kan leih anga, alo to hmain kan rih vûr nghal thei a ni.
- Thlai tiak tawh pawh a bul kan rih vûr nghal thei

Natural Farming

- Thei kung te thlasik alo thlen dawna rih vur, inchi 3-6 a chhah in kan vûr anga, feet 2 atanga feet 3 bial talin kan vur dawnnia. A theih pheih chuan feet 5-6 bialin kan khuh/vûr dawnnia.
- Kan thlai bul te kan rih vur emaw thildang hmanga kan khuh dawn hunah kan nem muk tur a ni.



Fig 7: Natural Farming training

Thlai bul rih vur thatna te:

- Leia dâi tla te nî alo chhuah huna nisa in a êm hunah boruaka a khu ral tur a veng.
- Hnim a dîp a, hnim thlawh tur a ti tlem.
- Heng rih vûr na atana kan hman – hnim ro te, buhpawl te, vaimim kung ro te, changel leh adang te pawh hi hun reilo te hnuah alo tawih a, lei ah chawṭha (humus) alo insiam leh nghal a ni.
- Thlai bul nisa in a êm avanga vuai tur leh harsatna dang thlen theihna te a veng theia, thlai te a venghim a ni.
- Ruahtuiin lei chung hang a luan ralpui tur a veng him.
- Kan rih vûr na hnah te alo tawih khan thlai bulah chawṭha kan pe nghal tihna a ni.
- Thlai ten an ṭhan leh puitlinna atana tui an mamawh zat engtiklai pawhin an hmu a. Anlo hrisel a, vuai sîn sên an awmlo.

Thlai bul rih vûr hi India rama lo neitute hian kan ngaipawimawh tawklo hle maia. Uluk takin thlai enkawlin leiṭha chitin reng pe pawh ni ila, kan ram anga ram âwih ah pheih chuan

Natural Farming

ruahtui hian lei chung hâng ̣a hi a luan ralpui (soil erosion) nasa êm êm maia. Hetianga a luangral tur hi kan dan loh chuan, lei ̣atna bawnggek leh ḍur te kan pe hneh thei dawn lova. A luangral kan vên hian kan loa kan leilung tan thil tha tawpkhâwk kan thawk ani tih hria ila, hahthlak deuh mahse kan ṿur hram hram thin tur a ni. Lei kan ṿur that hian ni sa in a êm khoro tur alo dang a, ruah far in lei a ti chhe tur a veng bawka, kan rih ṿur na ̣awihin lei alo ti hrisel leh zel bawk nen, Mizorama loneitu te hian kan thlai bul te rih ṿur zel ila, a rah ̣a kan seng ngei anga, kan la hlâwkpui dawn a ni.

Natural Farming

Thlai chin-pawlh dan tha:

Intercropping kan tih, thlai chi hnih aia tam, mumal leh awmze nei taka chin pawlh hian tãngkaina leh thatna tam tak a nei a. Thlai chi khat chauh a kum tela kan chin hian kan leilung atãngin khami thlai khan chawtha ei bik alo neia, chu chawtha (nutrient) chu khamkhawpa hipluh tur alo awm tawh dawnlo a ni. Hemi buaina laka kan fihlim theih na atan hian thlai chin pawlh hi a pawimawh em em a ni. Thlai chin pawlh kan tih hian kan hmuh remchan apiang chinpawlh kan chinga, chutiang ni lovin thlai thatna inpe tawn thei kan hriata kan thlan thiam a pawimawh hle mai.

Thlai zung bawk chi (leguminous crop) te thlai chin pawlhna (Intercropping) ah hian telh ngei ngei tur a ngaih an ni. Heng thlai te hian zung bawk an neia, an zung bawk hmang hian boruaka Nitrogen te hi thlai hip luh theih chiin (Nitrate) anlo siam danglam theia. Thlai chaw mamawh hnem ber – Nitrogen damdawi Urea hmanga kan pek thin te kha, kan thlai te tan eitheih turin an rawn chhawpchuah sak thin a ni. Chung thlai zinga Mizorama kan chin uar te chu- Behlawi, Bean chi hrang hrang, Bekang, Badam, Tengtere, Chana hring, Kelek chana, Dal, Behliang, Zawngtah te an ni a. A chung a kan thlai ziah te khi chin alo rem veklo anih pawhin, Mizoten chawhmeh atana kan duh em em, Behlawi leh Bean tal hi chu kum tin kan lo emaw leilet ah hian ching thin ila, lei chhe ngam tak an ni a, thlai chawtha Nitrogen pechuak theitu an nih vang hrim hrim pawh hian chin tel ngei a tha dawn a ni. Intercropping chi hrang hrang te:

1. Thlur bil a chin pawlh.
2. Ze bik neilova chin pawlh.
3. A lane a chin pawlh.
4. Thlai seng hma chiaha thlai dang tuh.

Thlai chin pawlh thatna te:

- Thlai thar a tam zawk- thlai pakhat chauh kan chin na hmunah chi hnih aia tam kan chin chuan a thar alo tam zawk a, kan ram kha a tha thei ang berin kan hmang a, entirnan Wheat leh Bean chinpawlhna ramah chuan Wheat hlanga chin ai chuan hralh tur thar a tam zawk.

Natural Farming

- Thlai hmun hman dan leh ðan dan inanglo te kan chin pawlh hian kan lo zim te kha a tangkai thei ang berin kan hmang tihna a ni. Leia zam chi leh a kung neia ding sang chi te hi ching kawp ila, boruak, tui leh lei an inchuh lovanga, an ðan ðat theih dan berin boruak an dawnsawng dawn a ni.
- Thlai ei chhetu rannung, natna leh hnim te a ti tlem: thlai ei chhetu rannung te hian kan thlai chin pui ber an eichhiat loha kan chinpawlha zawk (trap crop) an ei theih chuan kan thlai pui ber khan a thar ða anga, ei chhetu in an bawm tlem dawn a ni. Hetiang bawh hian natna leh hnim te hian min dip buai thei hle a, damdawi hmang lovin leilung khuh thei ang bera thlai kan chin phui chuan hnim kan lo dip anga, thlawh vak ngai lovin, thar tam tho siin kan lo kan enkawl thei dawn a ni.
- Risk a tlem: thlai pakhat aia tam kan chin pawlh hian, kan chin zinga mi kha lo chhia in tharchhuah engtham mah alo nihloh pawhin, kan chinpawlh khan minlo puhruk thei dawn a, risk a ti tlem a ni.
- Lei ati tha: thlai zung bawh chi kan chinpawlh hian leiah Nitrogen alo pe a, hei hian lei atitha thei bawh a ni.

Natural Farming

Thlai natna enkawl dan:

Thlai hrisel natna engmah neilo thar chu kan duh theuh ang. Nimahse ei chhetu leh natna hrik te hian kan thlai te hi anlo duhin, a tam lutuk (Economic Threshold Level) chinah pheh chuan enkawl a, kan tih tlem loh chuan kan thlai thar ati kiam hawk theia. Pest chu thlai ei chhetu rannung kan sawina a ni ber a, rannung chi hrâng hrâng a huam thei entirnân-thlangdâr, antam hrik, hnah khâwr, nget, thlai zuk tu hrik, a kher chi te leh chi hrang tâm tâk a huam thei. Heng ei chhetu rannung te hi a pângin an hnawk ngâwt lova, nimahse thlai chhiatna thlen thama an pun (Economic Threshold Level an pelh) chiah hian enkawla, tih kiam an lo ngâi ta chiâh thin. Hemi an thlen hmâa lo inven lâwk hi a finthlak viau a. Thlai ei chhetu rannung leh natna te kan enkawl a, thufingin ‘Tihdam aiin inven aþa zawk’ alo tih ang khan, invenna kawng tha kan zawna, kan lo zawm vat hi a tul a ni. Natural Farming chu Damdawi (Chemical) tel lova leilung leh thlai enkawl ani kan tih fo angin, thlai ei chhetu rannung leh thlai natna te kan enkawl na atan pawh awlsam taka kan hmuh theih bawlhlo chawhpawlha siam hmangin kan enkawl dawn a ni. Chung zingah chuan Agniastra, Neemastra, Brahmastra te hi a langsar leh a siamna hmanrua awlsam te an ni.

1. Agniastra:

Agniastra chu bawngzun, vaihlo hnah, hmarcha, purunvar leh neem hnah te chawhpawlha siam a ni. Thlai ei chhetu rannung chi hrâng hrâng- hnah khâwr, kuang bawm pângang, thei bawm pângang, leh rah bawm pângang te a ti tlem thei a ni.

Siam dan:

- Hmarchâ, sawhthing, purunvâr (kg chanve theuh) leh vaihlo hnah (kg1) leh Neem hnah (5kg) te kan deng sawm ang,
- Bawngzun liter 10 nen kan chawhpawlh ang, kan chhumso bawrh bawrh ang.
- Dârkâr 24 kan dah ang, kan thlifim ang.
- Heihi thlai kahna atân a hman theih tawh a ni.

Natural Farming

Thlaia kah dân tur: Agniastra liter 2 hi tui liter 100 ah kan pawlh dâl anga, kan kâp thin ang. (Alkatra zem liter 200 dawng ah Agniastra liter 4). Tui bucket khat ah ml 500 – liter chônve pawlh tur.

2. Brahmastra (hnah 5 pawlh):

Brahmastra hi hnah chi ngâ densawm chhumpawlh bâwngzun nena chawhpawlh a ni a. Hemi tui hian thlai natna leh thlai ei chhetu rannung ten an hua a, enkâwl na atan a ̣a hle.

Siam dan:

- Neem hnah
- Thingfanghma hnah
- Japan hlo hnah
- Kawlthei hnah
- Shillong par hnah

A chungka kan ziah hnah 5 tekhi kan chan sawm ang. Bawngzun nen kan chhum anga, a tui a chanve chena a phai thlengin kan chhum ang. Kan thliffim leh ang a. Thlai zûk ching hrik te, nget chi hrang hrang te kah nân a ̣a a ni.

3. Neemastra:

Neemastra chu rannung huât tui a ni ber a, bâwngzun, bâwnggek, neem hnâh te chawhpawlha siam a ni. Thlai zuk ching rannung ten an hua.

A siamdan:

- Neem hnah kg 5 densawm tur
- Bâwngzun liter 5 leh bâwnggek kg 2 pawlh tur
- Darkar 24 thleng up tur, up chhungin chawh thin tur a ni
- Thliffim a tha taka sawr tur, tui liter 100 ah pawlh tur
- Thlai kâh nan a hman theih (tin 1 hmun atan a tawk)

Neemastra leh Brahmastra te hi hmantheiha kan siam peih hnu ah thlai kâh na atâna kan hman dawnin pawlh dâl leh tur a ni a. Tui bucket khat ah Liter chanve vel kan pawlh theia. Tui liter

Natural Farming

100 ah erawh chuan Neemastra leh Brahmastra te hi Liter 2 kan pawlh thei a ni. Kan mamawh zât azirin kan siam dawn nia.



Fig 8: Brahmastra siam na atan hnah hman te

Natural Farming

Natural Farming hnuai a lo neitu hlawhtling chanchin:

Natural Farming hi India ramah chuan Zero Budget Natural Farming (ZBNF) tih hmingin a lar hle a, kum 1990 bawr vel khan Subhash Palekar an alo ching chhuakin India ram chhim lam – Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu ah te lian tham taka kalpui a ni tawh a ni. Loneitu hlawkna tel tam tak an awm tawh a, chung zinga mi thenkhat te chanchin kan tarlang dawn a ni.

Adaribariki Seethamma hi Andhra Pradesh atanga Natural Farming kalpui a hlawkna tel tu a ni a, kum 2019 May thla ah khan thlai a ching ñan a, a chin hma in Jeevamrit ro (Ghanajeevamrith) kg 200 kha leiah a theh a, leiah leh luh a ni. May ni 15 ah Rajma, Vaimim, Tomato, Behliang, buh tun, hnah hring thlai te leh Badam a ching a. Heng thlai chi te hi a tlarin a ching vek a, Bijamrit (thlai chi chiahna) ah a chiah vek bawk a ni. Hnim ro hmangin a thlai te a rih vur a, hemi chungah hian lei a theh ðat ðat bawk. A thlai hual velin hnim hling nei chi a ching kual vek. Hei bakah hian Jeevamrit tui kar hnih danah a kap ziah a ni. Neemastra hmangin thlai ei chhetu te kah ani bawk. Thlai te uluk taka enkawl a ni a, a ram engmah hmanlohin a awl tir lo ani.

He a huan ñin chanve hmun aia tlem (0.3acre) atang hian Rs 28,000 a lalut a ni. Thlai hnah hring nitin a hralh bawka, ni khatah cheng 500 aia tlem a lalut ngailo a, a thlai thar te a kum telin a ðha ve deuh deuh zel tiin a sawi bawk.

Smt. Rani pawh hi Kadapa district a Sambepalli Mandal atanga Natural Farming kalpui a ni a. kum 2019 atang khan Natural Farming hmangin thal lain (fur ruahtui tlak hma) a thlai te a lo ching ñin tawh a ni. ñin 1 hmunah Jeevamrit ro kg 200 January ni 21 2019 khan a theha, ni li hnu ah Jivamrit ro kg 800 a pe leh bawk. hemi hnu February ni 1 ah hian thlai chi 16 - Buhtun chi te, be hrang hrang te, Vaimim te, Bawrhsaiabe te, Tomato te, Changkha te, Anthur te, Buluih te, Dhania te, Hmarcha te a ching a, thlai tehi a chin hma in Bijamrit tuiah a chiah hmasa vek bawk a ni. Thlai bul rih vur nan hnim ro an hmanga, ramsate luh lohna turin lo an hung bawka, Jeevamrit akhat tawkin an pe renga, Neemastra an kap tel bawk a ni. Cheng 33,710 a lei theia, a thlai chin senso atan cheng 4800 chauh a hmang bawk. hetianga kum tluana thlai a chin a, lei dah awl lo hian a huan a leilung alo hrisel sawt a, lei pawh a mur ða sawt a ni.

Natural Farming

Ketankumar Punambhai Patel hi Bhalej khua, Gujarat a loneitu a ni a. Loneitu tha lawmman “Sardar Patel Award” leh “Best Farmer” lawmman te alo dawng tawh a ni. Ani hian Natural Farming zawmin fanghma Greenhouse ah a ching a, Jivamrit ro leh tui, Neemastra, Agniastra leh Brahmastra te a hmang nasa a. Jivamrit tui bik hi drip irrigation hmangin a pe a, ahlai chi te a chin hmian Bijamrit tui ah a chiah vek phawt a ni. Fanghma thar a pun thu an sawi a ni.

Detail	2016-17	2017-18	2018-19
Tharchhuah (Ton)	40	27	35
Hlep zat (nuai)	5.51	4.16	8.16

Yashi Dolma hi Himachal Pradesh a loneitu a ni a, khawvawt kara chin a ni. Jeevamrit, Bijamrit, thlai bul ruh vur leh lei tih nun (soil aeration) te uluk takin a zawm a, bigha 2.5 ram a nei a ni. Thlai chin te chu- Parbawr, Broccoli, Zikhlum, Buluih, Chana, Alu, Antam, leh lettuce a ching a ni.

Ram	Natural Farming
Bigha 2.5	Senso : Rs 30,000 Lakluh : Rs 2,00,000

Vijay Kumar hi Kuling khua, Himachal Pradesh a cheng loneitu a ni a. Subhash Palekar a Natural Farming a zawm a, Beejamrit, Jivamrit, thlai bul rih vur, leh lei tih mur that a zawm tha a. Ram bigha 25 ah Parbawr, Chana, Alu, Rajma leh Apple a ching a ni.

Natural farming ram	Damdawi telhna lo	Natural Farming
Bigha 25	Senso: Rs 15,000 Hlep: Rs 4,00,000	Senso: Rs 2,000 Hlep : Rs 4,50,000

Shailender Sharma hi Solan District, Himachal Pradesh a loneitu a ni. Beejamrit, Jivamrit, lei rih vur leh thlai atanga siam damdawi te a hmanga. A ram bigha 25 ah hian thlai-tomato, capsicum, beans and rajmash te a ching a, heng a thlai chin tehi Mizo te pawhin kan chin nasat an ni.

Natural Farming

Natural farming ram	Damdawi telhna lo	Natural Farming
Bigha 25	Senso: Rs 80,000	Senso : Rs 12,000
	Hlep : Rs 9,00,000	Help : Rs 12,00,000

Zakharias J. Shan hi Kottayam District, Kerala a loneitu a ni a. Best Farmer Award (block level) and Best organic farmer Award (district level) te alo dawng tawh a ni. KVK Kottayam ten ruahtui dan na (Rain shelter) hmangin an pui bawk. Bawngek leh Bawngzun hi lei tihthat na atan an hmang nasa a, Bawrh Saiabe, bawkbawn leh fanghma te a ching a ni.

Thlai chin	Chinna Ram	Thar zat	Senso	Kg 1 man	Help (Rs)
Bawrh Saiabe	12	900	10000	50	45000
Bawkbawn	1	300	3000	40	12000
Fanghma	4	500	4000	40	20000

Adinath Annappa Kinikar hi Karveer Taluk, Kolhapur District, Maharashtra a loneitu a ni a. Natural Farming leh thlai chin pawlh (multi-cropping) bakah vermicompost tin 6 hmunah a siam bawk. Vermicompost, vermin wash, Jivamrit, Pheromone traps te siam in thlai ah an hmang tangkai a. bawng an vulh bawk a ni, thlai chi hrang hrang Fu (2 acre), bekang (1/2 acre), chana hring (1 acre), buh (1/4 acre), chana (1/4 acre), badam (1/2 acre) leh sorghum (1/2 acre) te a ching a ni. Heng bakah hian thei kung chi hrang hrang- Ser te, Theihai te, Balhla te, Coconut te, Thingfanghma te, Custard apple te, Kawlthei leh Sapota te a ching bawk a ni. Tin, chawhmeh thlai zingah- Bawkbawn, Tomato, Zikhlum, Parbawr, Hmarcha leh Dhanian te a ching bawk.

Heng athlai chin atang hian Rs 2, 36,500 a hmuchhuak thei a, Theihai, kawlthei, custard apple, balhla, sapota leh thingfanghma atangin Rs 2,73,000 a hmuchhuak a tin, Bawkbawn, Tomato, Zikhlum, Parbawr, Hmarcha leh Dhanian atangin Rs 73,000 a hmuchhuak bawk a ni. Bawng vulh ah leh vermicompost atangin Rs 1,08,000 a hmuchhuak bawk a ni.

Natural Farming

Mizoram leh Natural Farming:

Mizoram hi India rama hmarchhak (North East) ah a awm a. Tripura, Assam leh Manipur te nen in rfin, Myanmar leh Bangladesh te nen International border in a in dâidang bawk. Mizoram state khawpui chu Aizawl a ni a, district 11 nei tawh in, a mi cheng tam zawk hi lo neih hmanga eizawng an ni. Mizoram a cheng mipui tam zawng chu kum 2011 census ah 1,097,206 a ni a, tin 21,081 square kilometres a zau a ni.

Lawngtlai District hi Mizoram chhim lama awm niin, district 11 zinga pakhat a ni. Hemi district chhungah hian Lai Autonomous District Council leh Chakma Autonomous District Council, Lawngtlai leh Kamalanagar a Headquarter nei ve ve an awm. Lawngtlai district sik leh sa hi a nuam tawk viau a. Nipui laiin a lum lutuk lova, thlasik ah pawh a vawt vin lem lo. Thlasik lai chuan 8 °C atanga 24 °C vela vâwt a ni a, Nipui ah chuan 18 °C atanga 32 °C vel bawr a ni. Ruahtui hi May atanga September thla thleng hian atla tlangpuia, kum khatah 2,947 mm ruahtui hmu anga chhut a ni.

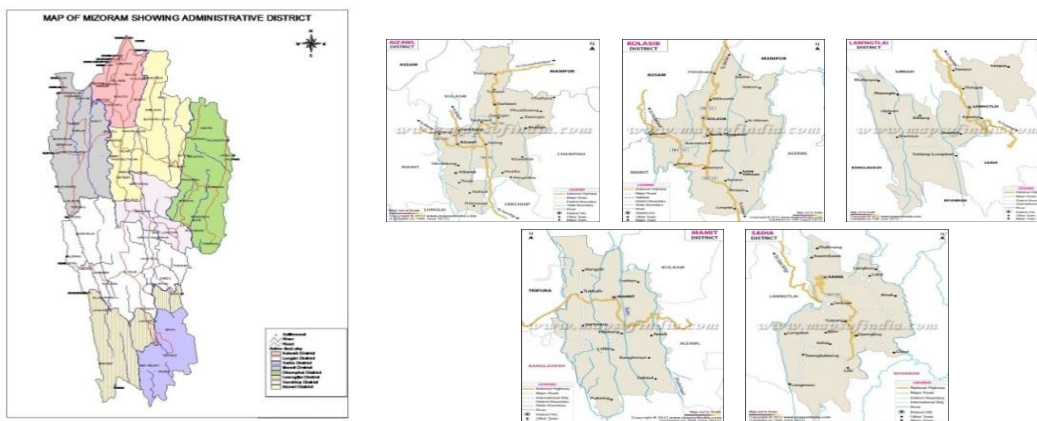


Fig 9: Mizoram map leh Natural Farming project awmna district te

Lawngtlai District hi Mizoram Chhim thlang lama awm a ni a thlang lamah Bangladesh in a rî a, chhim lamah Myanmar nen a in rî thung a ni. Lunglei leh Siaha District in chhim leh hmar ah a hual vel a ni. He district hi 92.30° - 93° E Longitudes leh 21.58° - 22.60° N Latitudes inkar ah a awm a. District headquarter – Lawngtlai hi National Highway No.54 in a zawm a, Aizawl atangin km 296 a hla a awm a ni. Lawngtlai district ah hian mi

Natural Farming

117,894 chengin a district zau zawng hi 2557.10 sq.km a ni a, chu chu Mizoram zau zawng atanga zaa 12.13% a ni.

Mizoram hi loneitu tamna ram kan ni a, kan lo neih dan tlanglawn pawh Tlangram lo neih (Jhum) a ni a. Hei hi Natural Farming nen a inkhuangrual hle mai a, a vanneihthlak hle. Mithiamte pawhin Jhumland (tlang ram lo neih) atang hian Natural Farming kalpui hi a awlsam thu an tarlang baw. Hmanlai kan pi leh pu te atanga kanlo inhrilha kan inzirtir chhawn zêl (Indigenous knowledge) chhawmning chung si hian engtin nge thlai leh buh leh bâl kan lo tharchhuah hnem telh telh theih ang tih hi kan inzawh a pawimawh hle mai a. Kan ram a chhengchhiat vang leh damdawi hmanga thlai enkawl hlauhna avang hrim hrim pawhin Mizoram hi Organic Farming ni thelh/tep (default) kan ni a. Nimahse, kan chenna leilung te a awih êm avang hian ruahtui far in lei chunghâng a luan bopui nasa êm êm si a (soil erosion). Lei tha kan pek teuh ai hian lei chunghâng luangral zel tur kan dan hian kan thlai te tan thil tha tak kan thawk a ni. Natural Farming hi awlsam si, pawisa sen tlem baw si a ni a, Mizoten hmanlaia kan lo neihdan nen a danglam tam siloa, kan rilrem zawng tak a nih ngei a rinawm hle a ni.

Organic Farming kan tih nen hian inzûl si, danglam daih si a ni a. Organic Farming ah pawh hian Industry lian siamchhuah damdawi (chemical fertilizer and pesticides) hman khap ani nameuh a. Nimahse, Organic Farming chuan ken tel a ngah êm êm a, bawngêk dûr (FYM) kg tam tak leia hman angaia, chu mai bakah thlai chi chiahnan leh leilung chiahnan thilnung damdawi (effective microbes) biofertilizer kan tih baw hi hman angai baw. Organic Farming in a ken tel ngei ngei chu Certificate a ni a, Certificate tello chuan kan thlai tharchhuah kha a ‘Organic’ tiin a pawm theih tlat lova. Certificate dawn nan hian endikna hautak tham tak paltlang a ngai baw. Natural Farming erawh chu Damdawi tello Certificate ngai silo a ni a, keini loneitute tana zawm awl tak a ni. Atak ngeia kalpui leh hlawhtlinpui tlang ram lo nei mi pawh nilo, damdawi tamtak hmang thin phaia lo nei zingah pawh an awm ta nual bawka, keini damdawi hmang tlem tan pheii chuan zawm a harsa dawnloa Natural Farming hi zawmin i hmang tângkai zel ang u.

Nimahsela, thawklekhata danglamna thlen puk puk chi ani lova, thil tha reng reng chuan hun a duh thin tih an tih angin, kan dawhtheih a ngai dawn hle a ni. Natural farming kan zawm tan kum 1 ah chauh thlai thar a tlem a, chumi hnu ah chuan a kum telin alo tam telh telh zawk tawh tura beisei a ni.

Natural Farming

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