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ISAAA

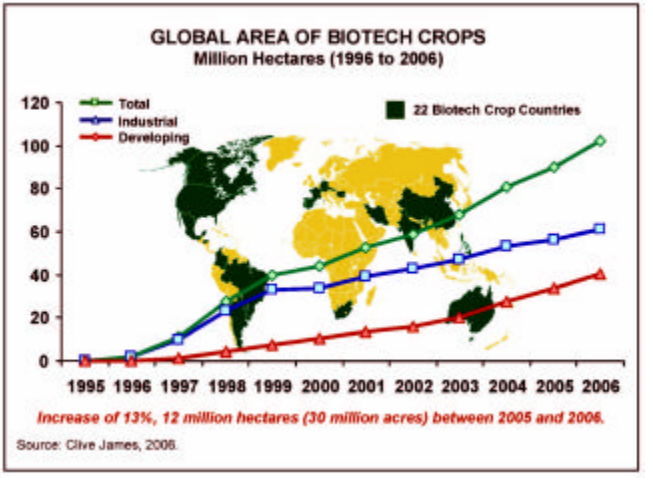
INTERNATIONAL SERVICE FOR THE ACQUISITION OF AGRI-BIOTECH APPLICATIONS

ewYwR¨K ev‡qv‡UK wRGg k‡m¨i wek¦cwiw¯ÍZ 2006

Executive Summary Preview, ISAAA Briefs 35

Wt KvBf †Rgm (gj)
‡Pqvi, ISAAA cwiPvjbv †evW
K‡bj wek¦e`¨vjq, B_vKv, wbDBqK, hy³ ivóª

c‡dmi Wt †K Gg bwmiDwÏb (fvIvš—i)-
cv³bcavb, D`¨vbZË, ev‡qv‡UK‡bvjwR wefvM, ewsjv‡`k KwI wek¦e`¨vjq, gqgbwmsn
RvZxq mgšqK, ISAAA
ewsjv‡`k ev‡qv‡UK‡bvjwR Bbdi‡gkb †m›Uvi (BdBIC)



cKvkK I ¯ZwaKvi: (2007) ISAAA

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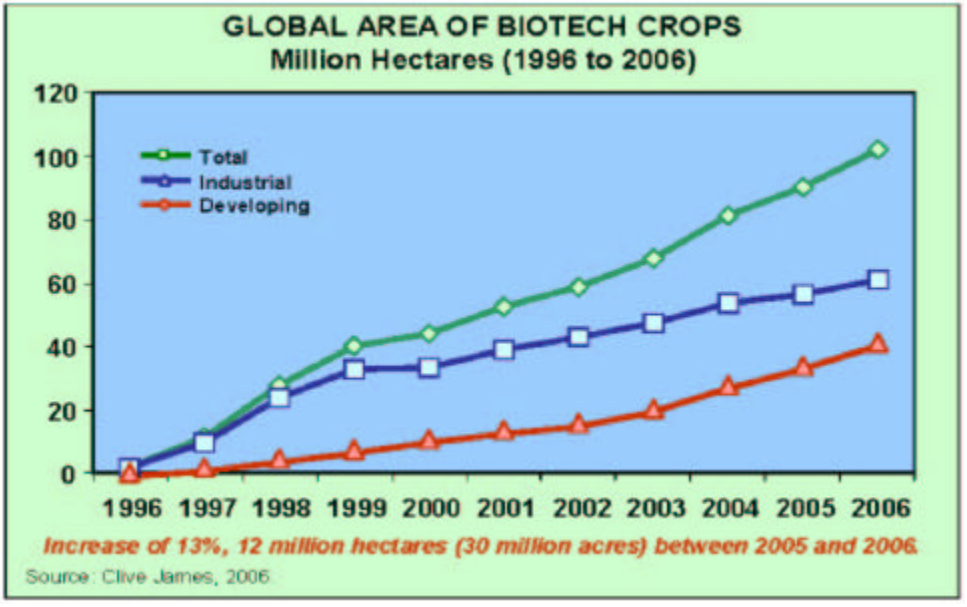
ewYwR¨K ev‡qv‡UK wRGg k‡m¨i wek¦cwi¯‹Z 2006

- 2006-2015 mv‡j i g‡a¨ 2006 nj ev‡qv‡UK km¨ ewYwR¨wKKi‡bi wØZxq `k‡Ki c_g eQi| G eQi ev‡qv‡UK k‡m¨i PvIvev` 13% †e‡o‡Q A_vr Av‡Mi Zjvbvq 12 wgwjqb †n±i †e‡o‡Q| eZgvb we‡k¦102 wgwjqb †n±‡i (252 wgwjqb GKi) ev‡qv‡UK k‡m¨i PvI n‡"Q| GeviB c_g 100 wgwjqb †n±‡i i I †ewk Rwg‡Z ev‡qv‡UK km¨ PvI Kiv n‡q‡Q| GKB Rv‡Zi k‡m¨ G eQiwU BwZnvm mµ‡Kvix GRb¨ †h, Stacked Traits m¤úb 2/3 wU wRb _vKv‡Z GKB km¨ Rv‡Z eûwea ¸bv¸b cvIqv m¤¢e Ges †m wn‡m‡e 102 wgwjqb †n±i Gi Trait Hectares n‡e 117.7 wgwjqb hv 102 wgwjqb †n±i Gi 15% †ekx|

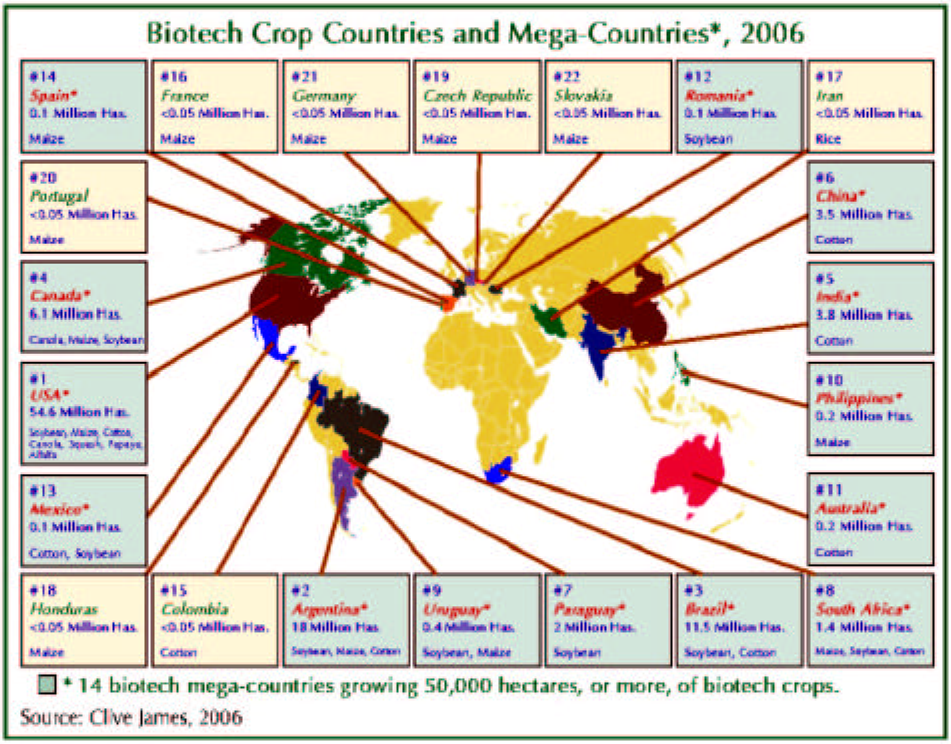
- ev‡qv‡UK km¨ 2006 mv‡j KZ¸‡jv gvB j‡óvb ARb K‡i‡Q| Gi g‡a¨ i‡q‡Q ev‡qv‡UK k‡m¨i ewIK PvIvev` 100 wgwjqb †n±i Qwo‡q‡Q| c_gev‡i gZ ev‡qv‡UK km¨ PvIKvix Kl‡Ki msL¨v 10 wgwjq‡bi †ekx n‡q‡Q| 1996 mvj n‡Z 2006 chš—R‰gi cwigvb Aa-wewjqb Qwo‡q‡Q (577 wgwjqb †n±i = 1.4 wewjqb GKi)| 1996 mvj †_‡K 2006 Gi g‡a¨ ev‡qv‡UK k‡m¨i PvI 60 ¸b e„× †c‡q‡Q, hv mv¤cwZK BwZnv‡m `ªZZg km¨ chy³ Mn‡bi GKwU Ab¨Zg NUbv|



we‡k¦ev‡qv‡UK k‡m¨i PvIKZ GjvKv 2005 mvj n‡Z 2006 mv‡j i g‡a¨ 13%, 11 wgwjqb †n±i ev 30 wgwjqb GKi e„× cvq|

- D‡jL¨ †h, 2005 I 2006 mv‡j i g‡a¨ 12 wgwjqb †n±i Rwg‡Z ev‡qv‡UK k‡m¨i PvI e„× †c‡q‡Q| weMZ 5 eQ‡i ev‡qv‡UK †h me Rwg‡Z km¨ PvI Kiv nq 2006 mvj Zvi g‡a¨ wØZxq ep„Ëg eQi| G‡Z †`Lv hvq Av‡gwiKv nj ev‡qv‡UK km¨ PvIKvix cavb †`k| G‡`‡k 80% Gi I †ekx mqweb I Zjv PvI Kiv nq| 2006 mv‡j fvi‡Z me‡P‡q †ekx Zjv PvI Kiv nq| G‡`‡k wewU Zjvi PvI wZb¸b e„× †c‡q A_vr 3.8 wgwjqb †n±‡i wewU Zjv PvI nh|

- 2006 mv‡j e¨e‡nv‡iK km¨ PvlKvix †`‡ki msL¨v 21 †_‡K 22-G †cŠ‡Q‡Q| BD‡ivcxq BDwbq‡bi †¯'vfwKqv c_gev‡ii gZ wewU fÆv Pvl ïi" K‡i‡Q| A_vr BD‡ivcxq BDwbq‡bi 25 wU †`‡ki g‡a¨ 6wU †`k e¨e‡nv‡iK km¨ Pvl K‡i‡Q| 2006 mv‡j BD‡ivcxq BDwbq‡bi †¯úb wQj e¨e‡nv‡iK km¨ PvlKvix cavb †`k Ges 60,000 †n±i RwgZ e¨e‡nv‡iK km¨ Pvl K‡i‡Q| D‡jL¨ †h, wewU fÆv PvlKvix BD‡ivcxq BDwbq‡bi Ab¨vb¨ 5wU †`k dvÝ, †PK cRvZš¿cZMv j, Rvgvbx I †¯'vfwKqvq| 2005 mvj †_‡K 2006 mvj chš—wewU fÆv Avev`Kvix Rwgi cwigvb cvq cvP¸b †e‡o‡Q (2005 G 1,500 †n±i, 2006 G 8,500 †n±i) Ges 2007 G D³ evo×i aviv Ae¨vnZ _vK‡e e‡j Avkv Kiv hvq|



we‡k¦i 14wU e¨e‡nv‡iK †gMv †`k hviv 50,000 †n±i ev Gi †ewk G jvKvq e¨e‡nv‡iK km¨ Pvl K‡i‡Q

- 2006 mv‡j 22wU †`‡k 10.3 wgwjqb KlK e¨e‡nv‡iK km¨ Pvl K‡i‡Q hv 2005 mv‡j wQj 8.5 wgwjqb| 10.3 wgwjq‡bi g‡a¨ 90% ev 9.3 wgwjqb (7.7 wgwjqb 2005) KlK wbæ‡kÖYxi I Dbqbkxj †`‡ki| G e¨e‡nv‡iK km¨ Pvl K‡i Zv‡`i `wi`ª¨ `ixfZ n‡q‡Q| 9.3 wgwjq‡bi g‡a¨ AwaKvskB wQj wewU Zjv PvlKvix| Gi g‡a¨ 6.8 wgwjqb Pxb, 2.3 wgwjqb fviZ I 100,000 wdwjcvBb Ges K‡qK nvRvi `w¶Y AwdKv Ges evwK Ab¨vb¨ Dbqbkxj ‡`‡ki Awaevmx| 2015 mv‡ji g‡a¨ mnmªvã Dbq‡bi j¶¨ 50% `wi`ª¨ `ixfZ Kivq e¨e‡nv‡iK km¨ cv_wgK mvdj¨ †i‡L‡Q Ges wØZxq `k‡K (2006-2015) DË‡ivËi fwgKv ivLvi m¤¢vebv i‡q‡Q|

- 2006 mv‡j AvMvQvbvkK mvnò ev‡qv‡UK km¨ Avjdvjdv c_‡g Av‡gwiKvq ewYR¨K fv‡e 80,000 †n±i Rvg‡Z Pvl Kiv nq| RR® Flex AvMvQvbvkK mvnò Zjv 2006 mv‡j hvÎv ïi“ K‡i Ges c_g eQ‡i 800,000 †n±i Rvg‡Z Gi Pvl Kiv nq| Gi g‡a¨ me‡P‡q †ekx Pvl Kiv nq Av‡gwiKv‡Z Ges cwigv‡b GiciB A‡óªjqvi Ae¯’vb| D‡jL¨ †h, 2006 mv‡ji †k‡li w`‡K Pxb fvBivm cwZ‡ivax †c‡c Drcv`b K‡i Ges ewYR¨wKKib K‡i|

- 2006 mv‡j ev‡qv‡UK km¨ Pvl Kvix 22wU †`‡ki g‡a¨ 11wU nj Dbqbkxj †`k Ges 11 wU nj wk‡ívbZ †`k| Rvgi cwigv‡bi wfwË‡Z Gme †`k nj Av‡gwiKv, Av‡R»Ubv, e¨wRj, KvbvWv, fviZ, Pxb, c¨viv¸‡q, `w¶b AwdKv, Di“¸‡q, wdwjcvBb, A‡ówjqv, i“gwbqv, †gw·‡Kv, †¯úb, Kjwœqv, dvÝ, Bivb, nÛywm, †PK cRvZš¿cZMvj, Rvgvbx Ges †¯vfwKqv| Gme †`‡ki g‡a¨ c_g 8wU †`‡ki c‡Z¨‡KB GK wgwjqb †n±iiI †ekx Rvg‡Z ev‡qv‡UK km¨ Pvl K‡i|

- c_gev‡ii gZ Px‡bi †P‡q (3.5 wgwqjb †n±i) fviZ (3.8 wgwjqb †n±i) †ekx cwigv‡b wewU Zjv Pvl Ki‡Q| G‡¶‡Î, Pxb I c¨viv¸‡q‡K wcQ‡b †d‡j fviZ 5g ¯’vb AwaKvi K‡i‡Q|

- D‡jL¨ ‡h, we‡kl 6.5 wewjqb RbmsL¨vi g‡a¨ A‡a‡Kil †ekx (55% ev 3.6 wewjqb) †jvK 22wU †`‡k evm K‡i, †hLv‡b 2006 mv‡j ev‡qv‡UK km¨ Pvl Kiv nq ‡hLv‡b cPi †jvK D‡jL‡hvM¨ fv‡e jvfevb Kg nq| ZvQvov we‡kl 1.5 wewjqb †n±i dmjx Rvgi g‡a¨ cvq A‡a‡Kil †ekx 52% ev 776 wgwjqb ‡n±i Rvg G 22wU †`‡ki g‡a¨ mxgve× †hLv‡b 2006 mv‡j ev‡qv‡UK km¨ Pvl Kiv nq|

- 2006 mv‡j we‡kl g‡a¨ me‡P‡q †ekx ev‡qv‡UK km¨ Pvl K‡i Av‡gwiKv Ges c‡i Av‡R»Ubv, e¨wRj, KvbvWv, fviZ I Pxb| Av‡gwiKv‡Z cvq 54.6 wgwjqb †n±i (we‡kl ev‡qv‡UK km¨ Avev`KvixRvgi g‡a¨ 53%) Rvg‡Z ev‡qv‡UK km¨ Pvl K‡i hvi 28% wQj ‡óKW (Stacked) Drcv` (2-3 ˆewkó¨ m¤úb)| G †óK± Drcv` eZgv‡b Av‡gwiKv, KvbvWv, A‡ówjqv, †gw·‡Kv I `w¶b AwdKv I wdwjcvB‡b Pvl K‡i eûwea dj cv‡”Q|

- 2006 mv‡j cKZc‡¶ †hme †`‡k ev‡qv‡UK km¨ Pv‡li Rvg e„× †c‡q‡Q Zv‡`i g‡a¨ Av‡gwiKv‡Z 4.8 wgwjqb †n±i fvi‡Z 2.5 wgwjqb †n±i| e¨wR‡j 2.1 wgwjqb †n±i Ges Av‡R»Ubv I `w¶b AwdKvi c‡Z¨‡KB 0.9 wgwjqb †n±i| G eQi fvi‡Z m‡ev”P e„× nvi 192% wQj (cvq 3 ¸b ev 2005 G 1.3 wgwjqb †n±i n‡Z e„× ‡c‡q 2006 G 3.8 wgwjqb †n±i n‡q‡Q)| Gic‡iB `w¶b AwdKv‡Z 180% mv`v I njy fÆvi Pvl e„× †c‡q‡Q| Avi wdwjcvB‡b e„× †c‡q‡Q cvq 100%|

- 2006 mv‡j ev‡qv‡UK mqweb‡K cavb ev‡qv‡UK km¨ wn‡m‡e aiv nq| we‡kl¦ev‡qv‡UK km¨ Pvl Kvix Rvgi g‡a¨ 58.6 wgwjqb †n±‡i (we‡kl¦ev‡qv‡UK Rvgi 57%) mqweb, 25.2 wgwjqb †n±‡i (we‡kl¦ev‡qv‡UK Rvgi 25%) fÆv, 13.4 wgwjqb †n±‡i (we‡kl¦ev‡qv‡UK Rvgi 13%) Zjv Ges 4.8 wgwjqb †n±‡i (we‡kl¦ev‡qv‡UK Rvgi 5%) K¨v‡bvjv Pvl Kiv nq|

- 1996 mvj †_‡K 2006 chš—ev‡qv‡UK km¨ ewYR¨wKKi‡bi AvMvQvbvkK †iwmmU¨v›U ˆewkó¨wU cavb wn‡m‡e we‡ePbv Kiv nq| Gic‡iKvU cwZ‡ivax I †óKW wRb‡K we‡ePbv Kiv nq| 2006 m‡j 102 wgwjqb †n±‡ii g‡a¨ 69.9 wgwjqb †n±‡i AvMvQvbvkK mvnò mqweb, fÆv, K¨v‡bvjv, Zjv I Avjdvjdv, 19.0 wgwjqb †n±‡i wewU km¨ 13.1 wgwjqb ‡n±‡i wewU †óKU wewkó AvMvQvbvkK mvnò km¨ Pvl Kiv nq| 2005 I 2006 mv‡ji g‡a¨ †óKU Drcv` wQj 30%, KvU mvnò 17% I AvMvQvbvkK mvnò wQj 10%|

- 1996-2006 mvj mgqKvj ch©šÍ Dbœqbkxj †`‡k evqy‡kvab k‡m¨i PvlvevZ †e‡o‡Q| 2006 mv‡j we‡k¦ evqy‡kvab km¨ PvlKvix Rwgi g‡a¨ 40% (40.9 wgwjqb †n±i) wQj Dbœqbkxj †`‡k| Avi 2005 I 2006 mv‡ji g‡a¨ wkíDbœZ †`‡ki Zjbvq Dbœqbkxj †`‡k evqy‡kvab k‡m¨i e„w× wQj †ekx (Dbœqbkxj †`‡k 21%, wkí DbœZ †`‡k 9%)| Dbœqbkxj †`‡ki g‡a¨ DbœZ 5wU †`k n‡jv fviZ, Pxb, Av‡R©w›Ubv, eªvwRj I `wÿb Avwd«Kv|

- c„w_exi 11 eQ‡i, we‡k¦i †gvU µg‡hvwRZ evqy‡kvab k‡m¨i Rwg wQj 577 wgwjqb †n±i ev 1.4 wewjqb GKi, hv Av‡gwiKv ev Pxb †`‡ki †gvU Rwgi A‡a©‡Ki I †ekx| A_ev hy³iv‡R¨i †gvU Rwgi 25 ¸b| evqy‡kvab k‡m¨i AvevK Mnb †_‡K cwZdwjZ nq †h, Kl©‡Kiv G †_‡K †ekx DcKvi cvq| Gme k‡m¨i e¨e¯’vcbv mnR I mvkªqx| Drcv`b LiP Kg, AvevK Drcv`b Ges †n±i cÖwZ Avq †ekx, ¯^v‡¯’¨i Rb¨ fvj Ges †cv÷‡KwgK¨vj e¨env‡i bvK‡i dmj Drcv`b m¤¢e| wkíDbœZ I Dbœqbkxj †`‡k †QvU I eo Kl©K, †fv³v I mgvR mevB G †_‡K DcKvi n‡"Q|

2005 mv‡j evqy‡kvab k‡m¨i we‡k¦ GjvKv †`k Abymv‡i (wgwjqb †n±i)| Drm: Clive James, 2006

µgvbymv‡i	†`k	GjvKv (wgwjqb †n±i)	evqy‡kvab km¨
1*	gvwK©b hy³ivó	54.6	mqvweb, fyÆv, Zzjv, K¨v‡bvjv, †¯‹vqvk, †c‡c, Avjdvjdv
2*	Av‡R©w›Ubv	18.0	mqvweb, fyÆv, Zzjv
3*	eªvwRj	11.5	mqvweb, Zzjv
4*	KvbvWv	6.1	K¨v‡bvjv, fyÆv, mqvweb
5	fviZ	3.8	Zzjv
6	Pxb	3.5	Zzjv
7	c¨vivM‡q	2.0	mqvweb
8*	`wÿb Avwd«Kv	1.4	fyÆv, mqvweb,Zzjv
9*	DiæM‡q	0.4	mqvweb, fyÆv
10	wdwjcvBb	0.2	fyÆv
11	A‡÷ªwjqv	0.2	Zzjv
12*	‡ivgvwbqv	0.1	mqvweb
13	‡gw·‡Kv	0.1	Zzjv, mqvweb
14*	‡¯úb	0.1	fyÆv
15	Kjw¤^qv	<0.1	Zzjv
16	dÖvÝ	<0.1	fyÆv
17	Bivb	<0.1	avb
18	nÛzivm	<0.1	fyÆv
19	‡PK cÖRvZš¿	<0.1	fyÆv
20	cZ©Mvj	<0.1	fyÆv
21	Rvgv©bx	<0.1	fyÆv
22	‡¯øvKwfqv	<01	fyÆv

* 14wU evqy‡kvab †gMv †`k 50,000 †n±i ev Gi †ewk GjvKvq evqy‡kvab km¨ PvlvevZ K‡i‡Q|
`ªóe¨: mKj WvUv †n±‡i Kiv Av‡Q hv 100,000 †n±‡ii KvQvKvwQ|cwZwU †`‡ki evqy‡kvab k‡m¨i cwiw¯’wZ m¤ú‡Ü we¯—vwiZ ebbv Kiv n‡q‡Q 34 bs Aby‡"Q‡`|

- 1996 †_‡K 2005 `k‡K we‡k¦ev‡qv‡UK k‡m¨i mv¤cwZK GK Rwic[1] †_‡K ‡`Lv hvq †h, 2005 mv‡j ev‡qv‡UK km¨ PvIKvix KIK‡`i Kv‡Q we‡k¦ cKZ A_‰bwZK jvf wQj 5.6 wewjqb gwKb Wjvi Ges 1996 †_‡K 2005 chš—µg‡hwRZ jvf wQj 27 wewjqb gwKb Wjvi (Dbqbkxj †`‡k 13 wewjqb, wkícvb †`‡k 14 wewjqb)| Gi g‡a¨ Av‡Rwi›Ubvi ev‡qv‡UK k‡m¨i Wvej µwcs| 1996 †_‡K 2005 mv‡ji g‡a¨ KxUbvkK e¨envi‡ii cwigvb 224,300 ‡gwU‡K Ub a.i. (Active ingradient) nvm ‡c‡q‡Q| Environmental Impact Quotient (EIQ) Gi g‡Z Gi d‡j GB mg¯—k‡m¨ e¨eüZ KxUbvk‡Ki Rb¨ cwi‡e‡ki Dci we‡íc cfve cvq 15% nvm †c‡q‡Q|

- 2006 mv‡ji Rjevqycwie Z‡bi ci óvb cwZ‡e`‡b D‡jL Kiv nq Mxb nvDR M¨vm Kgv‡Z Ges Rjevqy cwieZ‡b[2] ev‡qv‡UK km¨ wZbwU cavb Dcv‡q fwgKv iv‡L| c_gZ: Kg cwigvb Rxevk¥ Rvjvbx e¨envi‡ii gva¨‡g Kveb-WvB-A·vB‡Wi ¯‹vqx mÂq, AvMvQvbvkK I KxUbvk‡Ki ¯í c‡qvM| 2005 mv‡j Kveb-WvB-A·vB‡Wi 962 wgwjqb †KwR mÂq nq, hv 0.43 wgwjqb Mvox Kg e¨envi‡ii mgvb| wØZxqZ: ev‡qv‡UK Lv`¨, cïLv`¨ I dvBevi k‡m¨i Rb¨ PvIKZ Rwg msi¶b, G‡Z 2005 mv‡j gwU †_‡K cvq 7,053 wgwjqb †KwR Kveb-WvB-A·vBW c„ôKxKib nq, hv iv¯—v+‡_‡K 3.6 wgwjqb Mvox Acmvi‡bi mgvb| ZvB 2005 mv‡j †gvU 9,000 wgwjqb †KwR Kveb-WvB-A·vB‡Wi ¯‹vqx mÂqI c„ôKxKib nq, hv iv¯—v+‡_‡K 4 wgwjqb Mvox Acmvi‡bi mgvb| ZZxqZ: fwel¨‡Z B_vbj I ev‡qvW‡Rj Drcv`‡bi Rb¨ ev‡qv‡UK km¨ PvIKivi d‡j, GK w`‡K †hgb Rxevk¥ Rvjvbx cwZ¯‹vcZ n‡e Ab¨w`‡K †Zgbx Kveb wimvB‡Kj I c„ôKxKib n‡e| m¤cwZ GK M‡elYv †_‡K †`Lv hvq, ev‡qvd‡qj 65% kw³ Dr‡mi NvUwZ ciY Ki‡Z cv‡i|

- 2006 mv‡j 22wU †`k ewYwR¨Kfv‡e ev‡qv‡UK km¨ PvI K‡i‡Q| ZvQvov 29wU †`kmn 51wU †`k 1996 mvj †_‡K ev‡qv‡UK k‡m¨i Avg`wb, e¨envi I cwi‡e‡k we¯—vi‡i Rb¨ Abyôv`b K‡i‡Q| 107wU B‡f›U 21wU k‡m¨i Rb¨ 539wU c¯—ve Abyôvw`Z n‡q‡Q| ZvB 29wU ‡`k ev‡qv‡UK k‡m¨i Avg`wb Ges Lv`¨, cïLv`¨ I cwi‡e‡k we¯—vi‡i Rb¨ MÖnxZ n‡q‡Q| Rvcv‡bI ev‡qv‡UK km¨ Avg`wbi Rb¨ Abyôv`b jvf K‡i‡Q| hw` I Zviv ev‡qv‡UK km¨ PvIvev` K‡i bv| 51wU †`k, hviv ev‡qv‡UK km¨ Avg`wbi Rb¨ Abyôv`b K‡i‡Q Zv‡`i g‡a¨ mev‡M i‡q‡Q Av‡gwiKv, Gi c‡i i‡q‡Q Rvcvb, KvbvWv, `w¶b †Kwiqv, A‡óªjqv, wdwjcvBb, †gw·‡Kv, wbDwRj¨vÛ BD‡ivcxq BDwbqb I Pxb| fÆv‡Z me‡P‡q †ekx (35) B‡f›U i‡q‡Q, Gi c‡i i‡q‡Q Zjv (19), K¨v‡bvjv (14) I mqweb (7)| AwaKvsk †`‡k †hme B‡f›U Abyôv`b jvf K‡i‡Q †mme nj AvMvQvbvkK mwnò mqweb B‡f›U GTS-40-3-2, †cvKv cwZ‡ivax fÆv (MON810) I AvMvQvbvkK mwnò fÆv (NK603) Ges †cvKv cwZ‡ivax Zjv|

- ev‡qvd‡qj m¤úwKZ GB chv‡jvPbv ev‡qvd‡qj m¤ú‡K msw¶ß cwiPwZ c`vb K‡i Ges `ywbw`ó welq-km¨ ev‡qv‡UK‡bvjwR Ges Dbqbkxj †`k GB m¤úwKZ µgeagvb AvMn I Kvh¨¶‡Î Gi c‡qv‡Mi Dci Av‡jvKcvZ K‡i‡Q| GUv cZxqgvb n‡q‡Q †h, wkícavb I Dbqbkxj †`‡k ev‡qvd‡q‡ji Kg¨¶Zv evov‡Z ev‡qv‡UK‡bvjwR Zvrchcy fwgKv cvjb K‡i| Avkv Kiv n‡"Q †h, ev‡qv‡UK‡bvjwR I Ab¨vb¨ D™¢eb Dbqbkxj I wkícavb †`k †hgb Av‡gwiKv‡Z evovwZ Lv`¨, cïLv`¨ I dvBevi Drcv`b K‡i A`i fwel¨‡Z j¶¨ ARb Ki‡Z mnvqZv Ki‡e|

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[1] GM Crops: The first ten years- Global socio-economic and environmental impacts by Graham Brookes and Peter Barfoot, P.G. Economics. 2006

[2] Stern Review on the Economics of Climate Change, UK 2006 (www.sternreview.org.uk)

- ev‡qvd‡q‡j Drcvw`Z †h‡Kvb †cvMvg Kwi †¶Î, eb e¨e¯'vcbv, cwi‡ek Ges B‡Kwm‡óg we‡kl K‡i cwbi `¶ e¨envi BZ¨w`i †¶‡Î Aek¨B mnbxq n‡e| we‡kl g‡a¨ ewªRj nj ev‡qvd‡q‡ji w`K w`‡q †bZZ¨`vbKvix †`k| we‡kl AvaKvsk †`kB ev‡qvd‡qj Drcv`b, we¯'vi I e¨env‡ii gva¨‡g ZvrchcY fv‡e DcKZ n‡e| ev‡qvd‡qj Dbqbkxj †`‡ki ïaygvÎ RvZxq A_bxwZ‡K jvfevb K‡i bv, †Kvb †`‡ki `wi`Zg †jvK hviv Mvg¨ GjvKvq _v‡K, hv‡`i †e‡P _vKvi gZ wKQybvB Ges fwgnxb Mvg¨ kªgK hviv m¤úYi /‡c Rxebhv Îvi Rb¨ Kwl I e‡bi Dci wbfikxj Zv‡`i‡KI jvfevb K‡i|

- fwel¨‡Z 4 wU cavb ev‡qv‡UK km¨ Avi I AwaK msL¨K †`‡k we¯'vi K‡i ev‡qv‡UK dm‡ji wekè¨vcx dj‡bi evov‡bv, †n±i cwZ Drcv`b Kl‡Ki msL¨v evov‡bvi Avkv Kiv n‡”Q| cieZx 2006-2015 `k‡K 200 wgwjqb †n±i chš-ev‡qv‡UK dm‡ji Pvl, 40wU ‡`‡ki g‡a¨ Kgc‡¶ 20 wgwjqb KlK A_ev Avi I ‡ekx evov‡bvi Avkv Kiv n‡”Q| 2010-2011 mv‡ji g‡a¨ Liv mwnò wRb mnRj f¨ n‡e| Avi †hme Dbqbkxj †`k Liv cfv‡e dj‡bi evov‡Z cv‡i bv, †mme †`‡k Gme wRb mieivn Kiv n‡e DbZ Rv‡Zi Liv mwnò dmj Drcv`‡bi Rb¨| c_g `k‡K Av‡gwiKvi Zjbvq wØZxq `k‡K Gwkqv gnv‡`‡k ev‡qv‡UK k‡m¨i Drcv`b ew×i e¨vcK c‡Póv Kiv n‡e, mv‡_ mv‡_ DËi Av‡gwiKv I ewªR‡j I GB c‡Póv Ae¨vnZ _vK‡e| wewfb ˆewk‡ó¨i km¨ Avi I DbZ Kiv n‡e hv dm‡ji ¸bv¸b evov‡e| hvi d‡j ev‡qvUK k‡m¨i Mnb‡hvM¨Zv wewfb †`‡k we‡kl K‡i BD‡iv‡c †e‡o hv‡e| AvšRwZK Lv`¨ Z_¨ KvDwÝj (IFIC)[3] Av‡gwiKv‡Z 2006 mv‡j GK Rwi‡c wbwðZ K‡i‡Q †h, Av‡gwiKvi mieivnKZ fvj Lv‡`¨i g‡a¨ †KvbwU ev‡qv‡UK‡bvjwRi chy³ c‡qv‡Mi gva¨‡g Drcvw`Z †m me e¨vcv‡i Zv‡`i †Kvb gv_e¨v_v †bB| Ab¨vb¨ †hgb dvgwmDwUK¨vj `ª¨, Iivj f¨vK·b BZ¨w` ewYwR¨wKKib n‡e| 2015 mv‡ji g‡a¨ MDG ev mnmªã j¶¨ Dbq‡bi gva¨‡g `wi`ª‡gvPb (50%) n‡eB ev‡qv‡UK k‡m¨i cavb j¶¨ I D‡Ïk¨| c_g †Rbv‡ik‡b Lv`¨/cïLv`¨ Ges wØZxq †Rbv‡ik‡b ev‡qvd‡q‡ji Rb¨ km¨ Drcv`‡b ev‡qv‡UK‡bvjwR‡K e¨env‡ii †¶‡Î mshvM I P¨v‡jÄ DfqB i‡q‡Q| Lv`¨/cïLv`¨, AvL Ges fÆvi gZ km¨mgn ev‡qvd‡qj Drcv`‡b h‡_"Q e¨envi Ki‡j Dbqbkxj †`‡k †hLv‡b k‡m¨i gRỳ Kg Zviv wec`M¯—n‡Z cv‡i d‡j GB me †`‡k ev‡qv‡UKv‡bvjwRi Ávb c‡qvM K‡i dm‡ji Drcv`b Aek¨B ew× Ki‡Z n‡e hv‡Z K‡i Lv`¨, cïLv`¨ Ges Rvjvbxi Pvwn`v ci‡Yi j¶gvÎ ARb Kiv m¤¢e nq| 2006 †_‡K 2015 mv‡j µgvMZ DbZ e¨e¯'vcbv I ZËveav‡bi gva¨‡g `wi‡bi †`k¸‡jv‡Z ev‡qv‡UK k‡m¨i ewYwR¨wKKi‡bi Rb¨ `wi‡bi †`k¸‡jvi cwZ we‡kl bRi †`Iqv n‡e|

ev‡qv‡UK km¨ evRv‡ii wek¦gj¨

Cropnosis Øviv 2006 mv‡j ev‡qv‡UK k‡m¨i wek¦evRvigvb wbi/cb Kiv nq hv wQj 6.15 wewjqb Wjvi| GB cwigvb, 2006 mv‡ji wek¦km¨ †cv‡UKkb evRv‡ii 38.5 wewjqb Wjv‡ii 16% Ges 2006 mv‡ji wek¦ ewYwR¨K exR evRv‡ii 30 wewjqb Wjv‡ii 21%| 6.15 wewjqb Wjv‡ii ev‡qv‡UK km¨ evRvi g‡j¨i g‡a¨ 2.39 wewjqb Wjvi ev‡qv‡UK fÆv, 0.87 wewjqb Wjv‡ii ev‡qv‡UK Zjv I 0.21 wewjqb Wjv‡ii ev‡qv‡UK K¨v‡bvjv Avš-f³| wek¦ev‡qv‡UK k‡m¨i evRvig‡j¨i wfË nj ev‡qv‡UK k‡m¨i wewµZ gj¨ Ges g‡j¨i †_‡K ïi" K‡i GB 11 eQi mgqKv‡j Gi gvb `wi‡q‡Q 35.5 wewjqb gwKb Wjvi Ges c‡qvMKZ chy³ i g‡j¨i mgšq| 1996 mv‡ji cvivw¤¢K ewYwR¨K wek¦evRv‡ii ev‡qv‡UK k‡m¨i gj¨ 6.8 wewjqb gwKb Wjvi avh Kiv nq|

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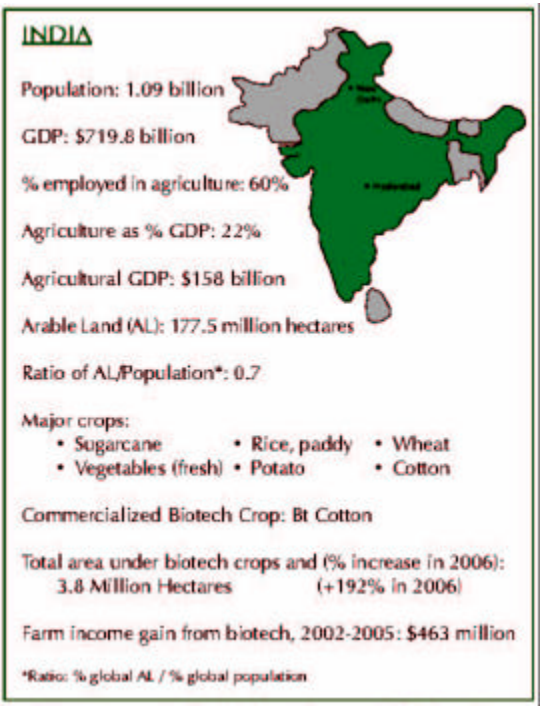
3 Intl. Food Information Council, 2006. Food Bioech: A Study of U.S. Consume Attitudinal Trends, 2006 report

fviZ

we‡kl ep,r Rbeûj †`k fviZ m¤úYi‡c Kwli Dci wbfikxj Ges †`‡ki wRWwci GK PZ_vsk Kwl t_‡K Av‡m hv ‡`‡ki `ßi-ZZxqvsk RbM‡Yi Lv‡`¨i †hvMvb w`‡q _v‡K| G †`‡ki AwaKvsk `wi`ªKIK RbMb Ges hviv Zv‡`i †gŠwjK Pwn`vi †hvMvb w`‡Z Amg_| MZ 2003 mv‡j i National Sample Survey[4] t_‡K ‡`Lv hvq †h, Mvgxb Rxeb hvÎvi mv‡_ m¤úwKZ cvq 60.4% cwievi Kwl Kv‡Ri mv‡_ RwoZ| 60% cwiev‡i GK †n±‡iil Kg Rwgi gwjK| gvÎ 5% cwiev‡ii Kv‡Q 4 †n±‡ii Dc‡i Rwg Av‡Q| gvÎ 5 wgwjqb cwiev‡ii i‡q‡Q h‡_ó Avq hv w`‡q Zv‡`i LiP P‡j I wKQyevowZ t_‡K hvq| fvi‡Z Kwl cwiev‡ii gwmK Mo Avq 46 gwKb Wjvi Ges gwmK LiP 62gwKb Wjvi| ZvB cvq 90 wgwjqb KIK cwievi ev cvq mg¯—KI‡Ki 95% Zv‡`i wb‡Ri c‡qvRbxq me wKQybqwgZ cvq bv| Ab¨vb¨ †`‡ki †`‡ki Zjbvq fvi‡Z Zjv Pv‡li Rb¨ h‡_ó Rwg i‡q‡Q| cvq 5 t_‡K 5.5 wgwjqb KIK 9 wgwjqb †n±i Rwg‡Z Zjv Pvl K‡i _v‡K| we‡kl Zjv Drcv`bKvix Rwgi g‡a¨ 25% nj fvi‡Z, AZx‡Z Gi cwigvb wQj 12%|



2002 mv‡j wewU Zjv‡K nvBwewW wn‡m‡e fvi‡Z c_g Pvl Kiv nq hv †cvKvgvKo cwZ‡ivax| 2002 mv‡j fviZ c_gev‡ii gZ 50,000 †n±i Rwg‡Z Zjv Pvl K‡i Ges 2003 mv‡j wØ¸b A_vr 100,000 †n±i Rwg‡Z wewU Zjv Pvl Kiv nq| 2004 mv‡j G Zjvi Avev` cvq Pvi¸b nq hv A‡aK wgwjqb †n±‡iil †ekx Rwg‡Z Pvl Kiv nq| 2005 mv‡j 1.3 gwjqb †n±i G wewU Zjv Pvl Kiv nq|

2006 mv‡j i wewU Zjvi Rwgi cwigvb cvq wZb¸b e¨w× †c‡q‡Q| A_vr 1.3 wgwjqb †n±i †_‡K 3.8 wgwjqb †n±‡i †cŠ‡Q‡Q| GB e¨w×i nvi we‡kl †h †Kvb †`‡ki cwZ eQ‡i Rwgi †h †Kvb e¨w× m‡ev"P cwigvb| 2006 mv‡j fvi‡Z †gvU 6.3 wgwjqb †n±i Rwg‡Z nvBwewW Zjvi Pvl Kiv nq, hv fvi‡Zi †gvU Zjv Avev`Kvix Rwgi 70%| GB 6.3 wgwjqb †n±‡iig‡a¨ 3.8 wgwjqb †n±‡i wewU Zjvi Pvl Kiv nq| 2004, 2005 I 2006 mv‡j fvi‡Z †h mg¯—G jvKvq wewU Zjvi Pvl Kiv n‡q‡Q Zv wb‡æi †Uwe‡j †`Lv‡bv n‡q‡Q| 2005 mv‡j me‡P‡q †ekx wewU Zjvi Avev` Kiv nq gnvivó‡Z 1.840 wgwjqb †n±i ev 48%, Gi c‡i AÜc‡`‡k 830,000 †n±i ev 22%, ¸Riv‡U 470,000 †n±i ev 12%, ga¨c‡`‡k 310,000 †n±i ev 8% Ges DËivÂ‡j 215,000 †n±i ev 6%|

[4]National Sample Survey, Organization's Situation Assessment Survey of Farmers (NSS, 59th Round), India, 2003

‡Uwej: 2004, 2005 I 2006 mv‡j fvi‡Zi eo ivóª‡jvi wewU Zjvi PvIKZ GjvKv (000Ô †n±i)

ivóª	2004	2005	2006
gvnvivóª	200	607	1,840
AÜªc‡`k	75	280	830
¸RivU	122	150	470
ga¨c‡`k	80	146	310
`w¶bvÂj	--	60	215
KvibvUwK	18	30	85
Zwgj bWy	5	27	45
Ab¨vb¨	--	--	5

cvÂve, nwiqvbv, ivR¯‹vb; Drm: ISAAA, 2006

2006 mv‡j B‡f‡›Ui msL¨v, wewU Zjv nBwe©Wi msL¨v Ges gv‡KUs K¤úwbi msL¨v A‡bK †e‡o‡Q thLv‡b 2005 mv‡j B‡f‡›Ui msL¨v wQj 20 wU †mLv‡b 2006 mv‡j GB B‡f‡›Ui msL¨v ‡e‡o n‡q‡Q 62wU| (wPÎ: Bt Cotton (2002-2006): 62 Bt cotton hybrids commercially released, 106 in large-scale trials (LST).

2006 mv‡j fvi‡Z 2.3 wgwjqb wbæ‡kBxi KIK 1.65 †n±i Rwg‡Z wewU Zjv PvIK‡i| 2004 mv‡j wewU Zjv PvIKvix Gwbæ‡kBxi KI‡Ki msL¨v wQj 300,000| 2005 mv‡j Zv e„× †c‡q nq 1 wgwjqb Ges 2006 mv‡j e„× †c‡q Gi msL¨v `vovq 2.3 wgwjqb| fvi‡Z G wewU Zjvi †n±i cwZ djb wQj 2001-2002 †gŠmwg 308 †KwR Ges 2006-2006 mv‡j Zv e„× †c‡q nq 450 †KwR|

Bennett *et al*[5]. Gi KvR n‡Z †`Lv hvq †h, 2002 mv‡j fvi‡Z wewU Zjv †_‡K jvf nq 45% Ges 2001 mv‡j 63%| M‡o `ÿZv eQ‡i 54% jvf nq| wewU Zjv PvI Kivi d‡j fvi‡Z Zjvi Bollworm `gb Ki‡Z KxUbvkKI Kg e¨envi Ki‡Z n‡q‡Q| Brookes and Barfoot Gi KvR n‡Z †`Lv hvq †h, 2002 mv‡j wewU Zjv PvI Kivi d‡j cKZ A_©bwZK jvf nq cwZ †n±‡i 139 gwKb Wjvi, 2003 mv‡j cwZ †n±‡i 324 gwKb Wjvi, 2004 mv‡j cwZ †n±‡i 171 gwKb Wjvi, 2005 mv‡j 260 gwKb Wjvi| M‡o Pvi eQ‡i †n±i cwZ 225 gwKb Wjvi| Gi d‡j 2005 mv‡j RvZxq jvf nq 339 gwKb Wjvi Ges µg‡hwRZ wn‡m‡e 2002 †_‡K 2005 chš-463 gwKb Wjvi| Gandhi and Namboodiri Gi AwZ mv¤cwZK[6] GK wi‡cvU †_‡K †`Lv hvq †h, Drcv`‡b jvf 31%, KxUbvkK †¯c K‡g 39% Ges 88% jvf †e‡o hvq A_vr 2004 mv‡j Zjvi †gŠmwg †n±i cwZ 250 gwKb Wjvi †e‡o hvq|

[5] **Bennett R, Ismael Y, Kambhampati U and Morse S (2004). Economic Impact of Genetically Modified Cotton in India, Agbioforum, Vol 7, No 3, Article 1.**

[6] **Gandhi V and Namboodiri N. V. The Adoption and Economics of Bt Cotton in India: Preliminary Results from a Study, IIMA Working Paper No. 2006-09-04, pp 1-27, Sept. 2006**

Drm: Clive James, 2006

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