

] 7g'' 7} 7} 7} 7ö7ðW

ž ÜòOZ

46(ž Ü)g'' 7

2013èö²*7Y/w K*šîtf ' 7K7g7zq»

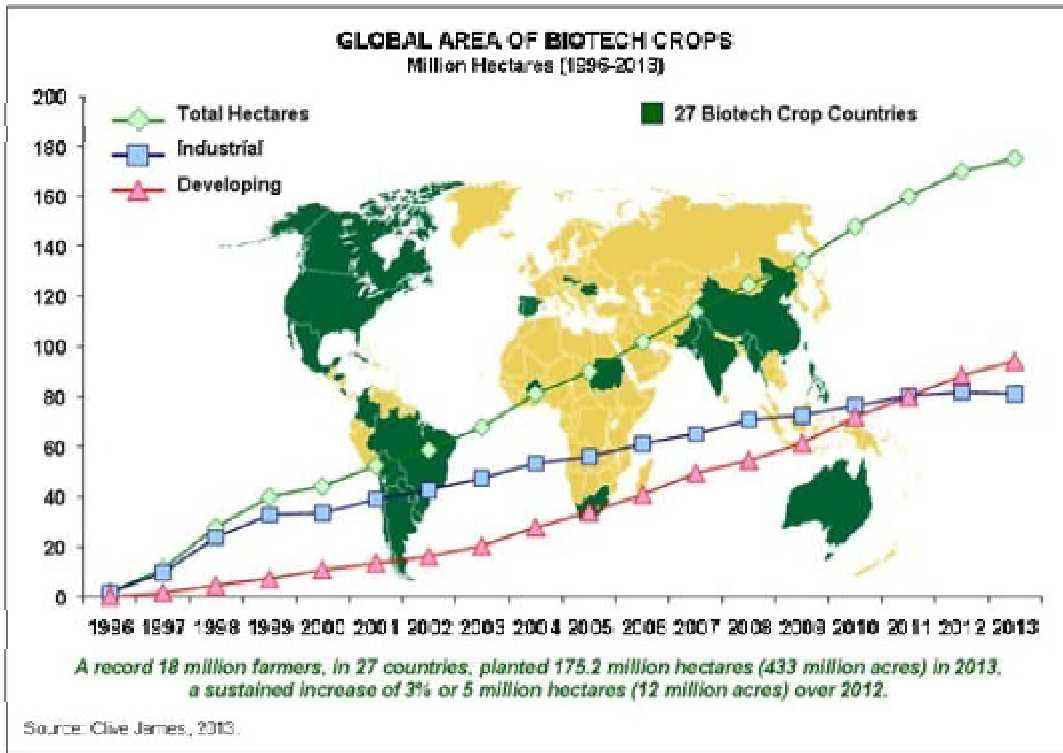
»Z™, â

7Eç-

} çF.. 7Z»™hžt} 7} 7} 7ö7ðW

Yè7g7w, æt è7š-šztzN(»Z™] -) 7ñ1ðgt» 7xÅ. â· 7Z »™hžt} 7} 7} 7ö7ðW

7E[™ 2014agâ25



' K*Ş @k f Çİ
(ye 2013 y 1996) içi

u' (27) 8 z l i G i @k f Çİ

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k y • l e f S 433) ' (e f S) • 172.2 K 2013 u v g C E i e f S 18 ({ a n }) e g k g ö 27
X Y • Ş c f • ' » % K (i • l • 12) iç i e f ° (• 5) c t o e ° 3 K • £ t 2012 ž l g X K™
46-2013 •

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t u a y K »™ ; î à z K e f S t u a »™ ; t * Ş î @ k f ' l »™ u f , ' ç ö (e f S) •
t g (l [Â [~ Ş ö ç G - P y , z z S X U e Ş i ; ~ A e l z ä c e y q i ç ö 100000
Ş X e f ' 0 a e J o e v . a o t X v q a u) a e z l Ş z l ~ l 9 l v . a o t u i ; ~ D Y ú t S v .

XY!0' 'lg@kf' !Y(™,1} ŠŠX{PufkKĀ} ~yWtw, Yot{™Ü - žYëzi, è:
Xŋ™UFö^{HG}k»™Ü, Qžsl~gzCŠ

Ü, zžkgz i^{H#4}uk~glæ¥ŠKñÍlg-zī ūZ(!t) - ō'7W0siz'0í OgZK2013YwV
~Pg⁶ í YKËygleŠXg^{FE}[ŃKĀe" zt2014 è^{Ÿ2}Š á zā^{FE}k⁶ā KĀe~yW
ōsiz' èšö^{HG}~Pt{™G(!t) - ^lez ŠX{K%è^{Ÿ2}šcfy^{HG}ŋZ KLw, ö^{HG}lo
»™UF ^LĚŠZ{Pèšw\$gzlĀñŠZf{iŌZ[Ā[^ŠW ūZ(!t) - zlyOgl
t™ĪñKlsiz'ĀG,, lgWgŋYy³, āš?lgZ{PèšcfzLĀK3zl^ yWĪñ@ktiŽ
»™, ā Šëzlá zg^{FE}UfK2014K~gzl~g tšcfyZhšgzlB~yWt2013cšè^{Ÿ2}tí
Xè^{FE}W, t' Yö^{FE}@'z@k ^zhzŠXg^{FE}i pKy*
} } lölöX{P(è^{Ÿ2}%Ūgzl~g»u} ŠŠZl Y{gŠZĐZKËyW«o } } } lölöZ
i, ö^{HG}kŠKËyZhŠXè^{Ÿ2}[^gzĐZ[ŠZl Y^{FE}Ō[Ā[^@kf' !ö^{HG}[Ā, āĀt} l
ŠZl Yy^{FE}g à yW, tg»uiç^{HG}«kS' !»™, 1Āš} ŠŠëzyWĀè^{Ÿ2}gzlèDYNà
Ky* îžlgN^{FE}«Kž {ò^{FE}šZ, t] Y!jXN^{FE}gzlKšè^{Ÿ2}f Ç!kËyW»uzl āz è^{Ÿ2}
X} gZKL 46y* ž ÜĀëzN, ā

ž Üò^{FE}

2013è^{Ÿ2}*Y/w K*Šîtf' !Klg!zg»

سز@t*

~glæ¥

Cšcfž%M@, 18Kgtgz» @kS' !

eztk»™UFzii, ö^{HG}kf' !

āgzlaĬy»k»™^leztkS' lžXé~gšX¥@wsžl' îAšz'· ōāĀCDVgzĬiK*Š^{Ÿ2}

x¥t(eztb,)YB(ĐžZl} Ĭœ^{FE}èè^{Ÿ2}g az; l~@ká zXq%(šcfi, gzlq%

XY(< (Ez) öY!! Đl»™W' fY~aš

Xég az ¥ @kS' !ö 27) 8zä K2013

Y~g az ¥ tŠV [t] Ñq OK^á zX}™YWg az ¥ t kS' !gz" zL÷Š@
XYKëgt

X%) e1 F 90KœX_gz{@ÄyW~g az ¥ @kS' ! u Wgz CEi ÉŠahZa}G

k™g az ¥ t kf ' !Šcfy»Wo Ñz: {g» u' »z™ 1FW 2013W, wL»z'M

X} C 27yWœKg, et*Š Zgziç 175' - k

W'0u z] g, t' 0í OgzsiZ't M%ZHñ ö »™ 1Fö kf ' !KW'] -

~Š!Wt*Š SzL{P~g az ¥ @kf ' ! (ŠUz^) 47 zžXYu' {Šut*Š ŮZ- Ki ŮZ

X} Cœ° (qz^) 41t

Xëx ¥ o YKz{ŠuKëkf ' !K*Š ŠsiZ'

Xq%gzLK{ZÄM%

X{P~g az ¥ t (k¾) f ' !àu z] g,

X'Fti ŮZ

15yW2012u Ck™g az ¥ Y' 'iç 148013eg kgt hK! f ' ! u' (5) Et 2- 8g-

yWÄ3™ (94yWœ) œ° 94t' ' »z™~g az ¥ 0ö 2-8g-Kk thÜ XyŠcf œ°

XY \ hžo »z™~Š!W >

X ÷ Këš \$aì ñzô éyW! y«™ tu g pakf ' !

X ÷ Këš yW! y@kf ' !

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Xëf gzlëkf ' !M

Xw tµñ »z™ YDkf ' !

X}™ C3t° le 0%L [gl15.6K f ' ! K2013

XWZtëvYYY ÷ tez f ' !Këš v! y6 a zLZ0uap t > 6® az K2013

~g/æ ¥ t V 0 o Z Z'

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ž ÜòOl

2013ēō² *lY/w K*šîtf ' lKlg!zg»

»z™, â

} ç²· zl»z™hžt} l} l} lōlōw çç-

Yēšg7w, æt ēš-šzčzN(»z™] ^) uñg1ōjt»Í xĀ. â·zl »z™hžt} l} l} lōlōw

Xēç[™ 2014agâ25

ož. ãñ(·zle²)âĀK2013zXY3%šcf' ^tktf' !yWx yç²78K*šç

X^ šcfyW (Éš) • 175' ^çç

X~g/æ ¥ wlj

Yf' l~g!zg»ēžXēçy αgš DW: Yēç²-Pt46ž Üt} l} l} lōlōl wlj lōOlš

X^ (c) ^ž: i, VhZl Zl} ç²gšwlj lç²2013@k*Z

XČšçž%~i0~i Kw, ((âh²)18 öç!zg»tkf' l

t ž ç ékf' !Yiç²(Éš) • 175.2egkgK*šç²ŶĀČšçœ°3 K*šç²K2013

ç ž 2013 w, šXkZ šcfç² • 5 yW(' ^)ç²(Éš) • 170yWk »%K 2012

17š YČšci »ç/M yWw, 17á zXkZw, 18yeZ2013 yW1996t(c ç² #) ~g!zg»

XöZ[Ā[^tk@Ww, 12yW

Xhz t k » zTM zii , ö^{HG} kf ' l

XVŠcfyWič^{H4} • 1175K2013yWič^{H4} • 1.7u^C ^ Cšcfoe^{0H} öeK' ' t * Š^H kf ' l
f ' IK*Š^H y, z Š á z ä ö^æ ZÄY t' zlg^{CE} i Š Ž UC^{aŠ} i^{HG} ~ t hz Š t -g^α z ¥
XäTM q^ñ zii , t' , ' ' O zli , Y -g^α z ¥ @k

ãgzla^C y » k » zTM ^ zhzt^{kS'} lžXé -g^Š x ¥ @ s zž' i^{AŠ} z' · 0a^{ACD} Vg^z CEi^{K*} Š^H &
x ¥ t (hzt^b ,) YB (Đ Ž z l } i^{ce} ö^e g^α z ¥ l -z[@] k á z X q % { Š c f i , g z l q %
XY (< CE l) ö Y ! ! Đ z » zTM W' f Y -g^Š

30t^{bŠ} K (w , { ä^{H4}) 18t^y e 2013y l 1996 ž q % C^a y l e Š • z ½ @ g l CEi^Y ~ i @ k f ' l
30t^{bŠ} w , 18Š t y e l 2013y w 1996 Y y e q^ñ ^ l ~ ! i , k f ' l ö^{HG} Vg^z CEi - t u '
g^α z ¥ ^ l è %^α , ' • 100z ž g , e^ž e^ž e^ž (l Š [z z l e^ž a Y D Vg^z CEi - y » '
z l M % ž q % h ž ' ' l ũ Š X k y e l ' Š c f y W i č^{H4} (É ö e) t % Y (g , e) ' ' t k Š z P
z ¥ f ' l ž } Š Š z i i E^Y W Ä t Š X q % h ž ' ' • i , ž l g Y Š c f o e ° 150 y w ½ t g , e & u
[y Ä , e^ž f ' l X Y z i i E^Y W Ä Š ö^ž • z ½ h Š W z l z e^ž y y e { Š D Vg^z CEi h z t -g^α
Y ; Š ! _ ö } t 2011w , » zTM K \ g - t 2 - à g - X Q l { @ Ä y Ž K w \$ t i ñ z .. K ñ ç z l { k %
X q % Ä i , y e { \$ ö^{HG} k f ' l ž } T M U

X -g^α z l ¥ t k f ' l y , 2013ö^{HG} (8 z l i G i 72

ž z F ~ X K u W o { " 1 F 8 z l » zTM 1 F 19 (1 x z l x) y » W o 27 » zTM k f ' l K 2013
Ž • Đ z l kTM (O W 1 F ~ i ? ~ i K % o » z ' z ž X Y g i l » zTM 1 F 8 y » W o 10 t W ~ i K x
270 ñ z e^ž k f ' l r È (É ö e) [g l 4 c o e 60 Š c f y W e t ~ Š ! W t * Š & X kTM k Š c f y W
X K Š ! W ö^{HG} W o

xö (ic)) ^Z[^ @w XXX' 'K*š @kf ' l2013X01 • x

xë² f ' l Éš) ' ' o gñ•
 tR³

(^Z[^

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k ^{3/4} à cî h	24.4	í OgZ	3
k ^{3/4}	11.0] g _s	4
È, ôî cî h ño	10.8	zS	5
a%RO ño k ^{3/4}	4.2	u	6
î cî k ^{3/4} h	3.6	ñíZ	7
î cî k ^{3/4} h	2.9	i b! †	8
k ^{3/4}	2.8	yî 0	9
ôî cî h	1.5	ñíZ-	10
ôî cî	1.0	cC 1	11
h	0.8	í Y	12
ñoZk ^{3/4}	0.6	˘7Z	13
k ^{3/4}	0.5	î ÑJ'	14
k ^{3/4}	0.3	gúx	15
h	0.1	Ü	16
ñoZk ^{3/4}	0.1	G	17
h zL k ^{3/4}	0.1	ñ	18
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ñoî cî h	<0.1	↵	20

	h	<0.1	k lg z	21
	h	<0.1	w.. b	22
	h	<0.1	!Y	23
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Î cÎ	h	< 0.1	e 0 h ±	25
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X»TM ^ ~~z~~ ~~u~~ ~~a~~ ~~t~~ ~~o~~ ~~e~~ ~~z~~ ~~g~~ **D** **

éYK 2013 **Wt** ' ~~z~~ ~~r~~ **È** ~~z~~ ~~Ö~~ **K** 2014 ***

2013 ~~ç~~ ~~ç~~ **ç** » X » ~~F~~ ~ ~~g~~ ~~š~~ **¥**



■ *19 biotech mega-countries growing 50,000 hectares, or more, of biotech crops.
 Source: Clive James, 2013.

X(Pg azl ¥ YšcfyWç 50000 C u W o f ' l ' 19
 2013 ç C » X » F ~ g Š ¥

u W o ' K2013z u @ W o » z™ @ k S' l : 1 ^

XYKë\$gt

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hž y' aždleoi wšžēī i,y,g0šμYt÷š@ XYK/ {gt ^l ez~g»u
] iYt g!zg»t¥z Kí Ÿ z] g, žYš!è%oz{šž öželi ,šëyWš{šXé
K2013 W!zg»K 2014kz&lz) t0o »™¹FCž%š: âži ,àĐl Xî o Ő
(Xs!gzl šK[Ā[^ »FK y³ šá z)X=] iYwμ @kf ' !

XKCEi (šzt)90 yllbe öže™(ZÄyWkf ' ! ugZCEi (Éš) • 18

yllbe°90žCXk™kf ' !ugZCEi • 18egkgK2013 ^lw\$@ZCEi • 17.3K2012
gZCEi • 7.5Ku X{guZCEi ž"y»yē@o »™¹šcfyW • 16.5c šcf
...7šžñyel2013yW 1996X9gl {ZÄyleš u WgZCEi • 7.3 K] g, zlgX {ZÄš
(Éœ) [gl 14.6K] g, z°le O%(Éœ) [gl15.3 ugZCEi tužUCªš [Ā[^ t
ëyZh š zK™ŋpe 50ëKwE l@žš; x>0O ž ugZCEi kËy, {ZÄt...Xk™ã™le O%l
oi tt' æzlwj aîñ (™wE l Ážš; c ž ugZCEi ^ ZhzšXšz {ZÄzléY t...i ,
Xk™*g»âži , W

Xk™kf ' !šcfy»Wb Ńz: {g» uWb »™¹FW 2013w, wZ

oe°54tiçšf ' li • 175ciçšš • 943™gzY [^ ĀugZCEij bzlđ · ŃM%lHŃ
yW2012šcf¾4CyGZcia • 81uWb Ńz: {g»K· Éš (K· Étœ°52K2012)
añ yz0žq%{i0žšyW fYšš Xšfiçš • 14 yW7 ^ lgñ • 0Ń at 2013
š ^ yWμ wE Wgtzg»ezšK1996 žCX> šgđr @»™; s Ůtšzl Yz™. z'
Y} ššÉĀuWb šcfyZĀuWb »™¹FNCšš Ńz: {g»8éšf ' ! ž^g0
Xaz™k ^ lezš: zlazcF

uWb »z™ 1Fá zkl°le 0%l t 59 {ZĀt... @Wb Ńz: {g»K*Ńt 2012yW1996
t°le 0%l [gl18.7žĀ Āi , (@Wb »z™ 1FK2012kĒyVgLeXk™ã... t 59.9
ö°le 0%l t 10.1 (@Wb Ńz: {g»zö½t°le 0%l • 8.6zžœ° 45.9y , «o

(ž½2014Āg|h½/½)

XWičĀ • 175 tœ° 27 t*šĭ @Wb k™CQ

1F10yĀz ~ 13K2013X} Ā/ tμ uFzi zĒli , @kf ' i Ēk™CQ
, ' ičĀ • 47â½@k k™CQK2013Xk™k k™CQšcfVW^Ā {ulo »z™
° 26tiž • 170cičĀ • 43.7K2012Xö½tœ° 27tičĀ • 175ĀĒg az¥
X} ĀyĵtēšcfKĵ>z»z' @Wb k™CQXöšcfyWb

K·lí OgzlsiLz M%lHñyW ožz'ãñ5žF 1Fkf ' iöWb] t[+) Ā
° 41 t~šWĭčbššzX{P uFœ° 47@kf ' 0ĭi ĵz(! +) - Ki ĵWzlu z] g ,
X} Āœ

zlí OgzlsiLz KM%lHñ0] g , zlu KY·LóW ožz™ 1Fžzãñ5öW] t - Kkf Āi
t bš [gl7Āšz (œ° 47t*š) e™~šW , ' ičĀ • 82.7 YĭĒšXĀ Āi ĵz - Ki ĵWz
yg (ĭ8ež} ĀOĭ : šXM™ēš [gl10.1Kw , œt2100žĀX{P 7 Yœ° 47t~šW
yeL (œ° 35t*š) [gl3.6KyW w , œt2100zU ēšcfyW (t*šĭ) [gl1~šWĭĵ ĵz
KšX} ĀēšutčĀDl 7 tuġpž¾yWkztýĵĵ-gšwi tuġpKbšĭXUj šz
XsWēštĭh! šá z{PēšĀ (Ākf ' i

*šēšĀ f ' iZx} ĀW·ĀY½vM%lKičĀ @kf ' iK*šVĀĀ • 40.3K*šĭsiLz

hŽo »ž' añzl > t*šîK2013sil' ešw, 5 »ž' -i0~ix^ y'pš oYōgzl OĐZK
ŋ™kœ-š23t' t*šîtič• 3.7ólicč• k'f' l~ž't owz' t*šx^
»z™ uFziKsil'XYō™yžyci7yžN3™ÁtčšgžlĀM%zl(šcfyWœ°21K2012)
YiŽ• 2.2sil'žéih!ëĐZKsil'K 2013XYKēšy, Wi, ēšyKšyWēšyhz
X} l8} lgl! *l~IX} ™kčĪ čĪCQ^ šgtg!zg»gz" zl(™»! 1- \$àgzlŋ@O Ž
»z™ ošg'K2015gzlyĀY tw, °leO%l[glĐl^ Đlčšgzl~glæ¥Kg azl¥ tsil'
X} ™xlž6 WēšyYtg!zg»tōB»™KšyĀK} lzq' l

(YāñyWĀM%) zY'Y{ZĀšM%l

°90ēš' t'k'f' IKzž (œ°40č*š)} Čo > yWĀt'k'f' IK*šyĀ• 70.1M%
XöĀyW' ž%K2012ČX} ™~g azl¥ t'k'f' ličš• 10.8K2013l" Xöœ
K2013l" Xöž*g»t{ZĀĐžk™Ypgzlwzleš' NO, ' Āiččš800000uglČei yWS{š
100000žČ} ™kĀyWrgōt'ŋčšē vIX} ™kčŇOf' !yĀēšKšcfœ°96
Xéœ°99 ēš' ičš ēžá z öličš

Xk™kčk¾f' làu zll] g,

kœ°90Ku á zX} ™k¾f' !egkgtičš• 11.0^l[^čz™kœ°95] g,
Xk™k¾f' !Wi Ž• 4.2^l[^čxgĀY• 0.5uglČei e'š• 7.5yĀēš

X'FKi ņl

zlĀ Yxž6i ņl(!†) - zl•Y'Y'FK' 'Očk¾f' !šg'f yĀyleĪ zlĪĀJ'i ņl
vW313781 ĪĀJ' (f'čszlvĀ2.9žvšič ŽA02.85)X• š±Yč2012^ lY'lá z

K2012w, ĀYcCm0# Gyze10' ŠZY' 'icok34f' !šcfyWoe°50Yic0474229
žq%yZhšµwšX}™šcf½] Yic062000K2013w, YgzlaYic020000tK34f' !
f' !, ' 'iEŁ, ÍzlcOt0~z50p0tV^0yz" ^Z[^t({szw)uWoj 0z8à
~Úe ~¥] èš(Cáuž{ukñ;i, ö'žk™ōetkW(š»)0BzlñyWhzk¾)k
X} z™šh»™uFKĚykk2ti 0lyel2017zžēyšyWk¾6} l*1

XYšcfœ°15yW2012CXk™ki Ž148013egkgthK! f' ICžuwōĚ2-8g-
Xkzo >yWĀž™, ' 'œ°94 YhK!K2-Ü
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• "zł3™šW' 'ic0šegkg136962tKthK! yĀCšcfœ°18 Üöšcfœ°15 c
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XîpšawuVeztX q: N 2-8g- @WŁei zODztk™k, ' 'e1šzÁi, Él|zš
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116.9c3@k0wštīñzōweWŁzi, 0ēštužp@kf' !yel2012yW 1996
Og»{ZĀO†šsÜY @žš; O ŽxI™3• 4970ēšhžwj āāŽ0šcft°le0%l[gl
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i tš šá zēli, ēš f' !Xq%Y'ēgš, àzlk VhšX{PšæKēšcftkzš%š
@czlšž} Cēli, e'kf' !i štēšw, w, žyš} 6»ezt~gšzl¥āžšXsl
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XēšKwštīñ@kf' !

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• 377Kglzla3™ŋK(~gzš: Ážŕžš; O ŽXgG) ayt èGö ņe°58yGZx}™
Šcftkœ°83{ZĀî e°leO%l[gl18.7^l[^ ŕŕt2012X}™š{ZĀœ°42yWCšcf
(ãñyW2014ug!h7/4')XéyWŋKayt èGkœ°17zX} C yWèš

X^lezteögPg, ekf ' lXèöDgš, »%Á

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w, Cöž™1FXU ègKëšy eozi, šYëzžgš, ž"ÁèĚ^ »@k ^lez
Cšcf kf ' 0yel2012yW1996XY3%»k O@ŕ xšXgš, »%Áičŕ• 13
@HKšcftičŕ• 123»™^leztlczlĀpĀlašèĚf ' lšX}™lazužŕŕX u zgp
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Ā} hzžk (æR)' xšöWlož™1FXñzG, žgšgšglèšgĪžš] gzč
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X=WešĀk#lzlR%

! + - zĪĀJ'XcC1XgúxôyĪ ŕŕ] g, ŕužyzšöO »™1FK3/4f ' lK2013el
{šwztc šŕ}#XäÈkz=ŕŕLyW^ KëšcfYš%@WZei d3/4zēšcfyW Ki ŕz
XU èššcfšazlĀhžk3/4f ' lK2015zl2014w, C v»w,

XX^{YF}é^{YF}AWZ^{YF}; i tĩñyWg^{YF} αz^{YF}¥

é^{YF}AWZSY^{YF}ĩñz^{YF}wj^{YF} á-g^{YF} αz^{YF}¥ tez^{YF} f ' l^{YF}zX^{YF} ä^{YF}p^{YF}W^{YF}O^{YF}i^{YF}, w^{YF}ĩñz^{YF}wj^{YF} ák^{YF} »^{YF}™^^{YF} lezt^{YF}lc^{YF}zl^{YF}
Á^{YF}t^{YF}w^{YF}d^{YF}z^{YF}l^{YF}w^{YF}m^{YF}e^{YF}0^{YF}é^{YF}W^{YF}ĩñz^{YF}lc^{YF}é^{YF}Á^{YF}t^{YF}g^{YF}0^{YF}w^{YF}E^{YF} l^{YF}Á^{YF}0^{YF}z^{YF}š^{YF}; O^{YF} Ž^{YF}K^{YF}1^{YF}F^{YF}i^{YF}e^{YF}X^{YF}U^{YF} é^{YF}š^{YF}W^{YF} 7^{YF}W^{YF}
z^{YF}k^{YF}š^{YF}g^{YF}, ew^{YF}E^{YF} l^{YF}Á^{YF}0^{YF}z^{YF}š^{YF}W^{YF}é^{YF}g^{YF} ea^{YF}7^{YF}l^{YF} ¶^{YF}K^{YF}é^{YF}š^{YF} g^{YF}{^{YF}à^{YF}, l^{YF}0^{YF}le^{YF}O^{YF}g^{YF}»^{YF}y^{YF}w^{YF}é^{YF}š^{YF}W^{YF} é^{YF}š^{YF}W^{YF} E^{YF} l^{YF}
497^{YF}t^{YF}(^{YF}é^{YF}g^{YF} l^{YF})^{YF}l^{YF}š^{YF}z^{YF}%^{YF}w^{YF}E^{YF} li^{YF}, Đ^{YF}ly^{YF}e^{YF}l^{YF}2012^{YF} y^{YF}W^{YF}1996^{YF}X^{YF}} Ć^{YF}g^{YF}z^{YF}l^{YF}é^{YF}é^{YF}š^{YF}é^{YF}ĩ^{YF}t^{YF}~g^{YF} αz^{YF}¥

z^{YF}¶^{YF}pe^{YF}°^{YF}8.7^{YF}K^{YF}0^{YF}z^{YF}š^{YF}; O^{YF} Ž^{YF}ž^{YF}Ć^{YF} [~ t^{YF}¶^{YF}z^{YF}%^{YF}À^{YF}K^{YF}w^{YF}E^{YF} l^{YF}Á^{YF}0^{YF}z^{YF}š^{YF}; O^{YF} æ^{YF}x^{YF}l^{YF}3^{YF}.
b^{YF}™^{YF}Á^{YF}œ^{YF}°^{YF}18.5^{YF}W^{YF}t^{YF}w^{YF}š^{YF}t^{YF}ĩñz^{YF}g^{YF}z^{YF}ly^{YF}Á^{YF}w^{YF}E^{YF} l^{YF}Á^{YF}t^{YF}} 4^{YF}l^{YF}; O^{YF} Ž^{YF}ñ^{YF}z^{YF}é^{YF}š^{YF}»^{YF}k^{YF}š^{YF}ž^{YF}Ć^{YF}x^{YF}Ć^{YF}Y^{YF} t^{YF}py^{YF}
Ć^{YF}k^{YF}l^{YF}~g^{YF}l^{YF}æ^{YF}¥^{YF}á^{YF}Đ^{YF}Y^{YF}0^{YF}l^{YF}~l^{YF}ä^{YF}} k^{YF}™^{YF}(^{YF}Y^{YF}0^{YF}l^{YF}~l^{YF})^{YF}i^{YF}¶^{YF}Á^{YF}i^{YF}¶^{YF}š^{YF}ly^{YF}š^{YF}¶^{YF}l^{YF}~g^{YF}l^{YF}æ^{YF}¥^{YF}g^{YF}z^{YF}á^{YF}Đ^{YF}l^{YF}t^{YF}š^{YF}ž^{YF}ä^{YF}
¶^{YF}t^{YF}x^{YF}l^{YF}3^{YF}. 36^{YF}K^{YF}0^{YF}z^{YF}l^{YF} ^^{YF}l^{YF} 0^{YF}t^{YF}đ^{YF}e^{YF}š^{YF}~2012^{YF}w^{YF}, Đ^{YF}X^{YF}U^{YF} *^{YF}g^{YF}»^{YF}á^{YF}ž^{YF}Đ^{YF}l^{YF}š^{YF}»^{YF}%^{YF}ž^{YF}ĩñz^{YF}ž^{YF}

(^{YF}añy^{YF}W^{YF}2014^{YF}ug^{YF}lh^{YF}l^{YF}3^{YF}/4^{YF})^{YF}é^{YF}Á^{YF}t^{YF}œ^{YF}°^{YF}23.6^{YF}K^{YF}Y^{YF}0^{YF}l^{YF}~l^{YF}z^{YF}l^{YF}(^{YF}q^{YF}%^{YF}œ^{YF}°^{YF}8^{YF}0^{YF}z^{YF}š^{YF}; O^{YF} Ž^{YF})^{YF}é^{YF}
W^{YF}~g^{YF} αz^{YF}¥^{YF}k^{YF}š^{YF}; l^{YF}u^{YF}0^{YF}œ^{YF}°^{YF}70^{YF}K^{YF}*^{YF}š^{YF}ĩ^{YF}X^{YF}ñ^{YF}š^{YF} ÷^{YF}O^{YF}é^{YF}g^{YF}z^{YF}l^{YF}é^{YF}š^{YF}Y^{YF}l^{YF}k^{YF}Ć^{YF}b^{YF}š^{YF}ĩ^{YF}z^{YF}j^{YF} š^{YF}z^{YF}t^{YF}w^{YF}E^{YF} l^{YF}t^{YF}k^{YF}
[~ t^{YF}œ^{YF}°^{YF}30^{YF}3^{YF}š^{YF}z^{YF}K^{YF}2050^{YF}~š^{YF}l^{YF}ž^{YF}u^{YF}, z^{YF}ž^{YF}š^{YF}X^{YF}ñ^{YF}z^{YF}g^{YF}0^{YF}t^{YF}š^{YF}K^{YF}l^{YF}ž^{YF}ž^{YF}ž^{YF}} %^{YF}x^{YF}¥^{YF}+^{YF}z^{YF}l^{YF}q^{YF}%^{YF}w^{YF}E^{YF} l^{YF}
X^{YF}e^{YF}š^{YF}Ö^{YF}y^{YF}, z^{YF}t^{YF}é^{YF}š^{YF}Y^{YF}w^{YF}; e^{YF}¶^{YF}t^{YF}k^{YF}š^{YF}K^{YF}M^{YF}%^{YF}l^{YF}K^{YF}2013^{YF}Y^{YF}h^{YF}t^{YF}±^{YF}z^{YF}f^{YF} ' l^{YF}"^{YF}z^{YF}l^{YF}X^{YF}ñ^{YF}%^{YF}š^{YF}Ć^{YF}y^{YF}W^{YF}l^{YF}g^{YF}l^{YF}9^{YF} ^^{YF}l^{YF}
Y^{YF}w^{YF}; š^{YF}X^{YF}ñ^{YF}%^{YF}Ć^{YF}] 0^{YF}!#^{YF}K^{YF}2017^{YF} K^{YF}i^{YF} b^{YF}z^{YF}yg^{YF}~ž^{YF}}™^{YF}é^{YF}š^{YF}Y^{YF}w^{YF}; ž^{YF}h^{YF}f^{YF} ' l^{YF}»^{YF}%^{YF}K^{YF}l^{YF}ĩ^{YF}»^{YF}"^{YF}z^{YF}z^{YF}l^{YF}
} h^{YF}z^{YF}ž^{YF}0^{YF}¶^{YF}W^{YF}o^{YF}ñ^{YF}z^{YF}: {g^{YF}»^{YF}ž^{YF}™^{YF}1^{YF}š^{YF}Ć^{YF}y^{YF}W^{YF}Á^{YF}X^{YF}ñ^{YF} ·^{YF}¶^{YF}W^{YF}á^{YF}ž^{YF}i^{YF}, Y^{YF}x^{YF}Á^{YF}@^{YF}k^{YF}ž^{YF}%^{YF}K^{YF}*^{YF}š^{YF}é^{YF}š^{YF}ñ^{YF}z^{YF}é^{YF}š^{YF}W^{YF}

Xñz%J zlzgi ,w;e

X(K¶@R kz; + αzlwštĩñ

Ć^{YF} K^{YF}w^{YF}š^{YF}t^{YF}ĩñz^{YF}l^{YF}¶^{YF}@^{YF}R^{YF} kz; + α^{YF}ž^{YF}} %^{YF}l^{YF}k^{YF}f^{YF} ' l^{YF}ž^{YF}} Ć^{YF}š^{YF}á. 6^{YF}z^{YF}l^{YF}é^{YF}ly^{YF}W^{YF}Á^{YF}y^{YF}, α^{YF}g^{YF}0^{YF}t^{YF}w^{YF}j^{YF} á
2012^{YF}¶^{YF}K^{YF}w^{YF}E^{YF} l^{YF}é^{YF}g^{YF}1^{YF}w^{YF}z^{YF}l^{YF}; U^{YF}á^{YF}z^{YF}l^{YF}¶^{YF}K^{YF}à^{YF}, l^{YF}0^{YF}le^{YF}O^{YF}g^{YF}»^{YF}y^{YF}W^{YF}¶^{YF}K^{YF}w^{YF}E^{YF} l^{YF}t^{YF}%^{YF}X^{YF}¶^{YF}™^{YF}(^{YF} ^^{YF}l^{YF} ez^{YF}
; a^{YF}1^{YF})^{YF}é^{YF}š^{YF}: É^{YF}z^{YF}l^{YF}é^{YF}š^{YF}g^{YF}0^{YF}w^{YF}X^{YF}Y^{YF}l^{YF}t^{YF}é^{YF}š^{YF}t^{YF}g^{YF}»^{YF}. 0.94^{YF}ž^{YF}Ć^{YF}¶^{YF}t^{YF}à^{YF}, l^{YF}0^{YF}le^{YF}O^{YF}g^{YF}»^{YF}[^{YF} g^{YF}l^{YF}2.1^{YF}K^{YF}
š^{YF}Ć^{YF}f^{YF}} i^{YF}K^{YF}2012^{YF}ž^{YF}Ć^{YF}k^{YF}ñ^{YF}z^{YF}ú^{YF}g^{YF}z^{YF}l^{YF}k^{YF}X^{YF}u^{YF}g^{YF}p^{YF}f^{YF} ' Ć^{YF}(^{YF}y^{YF}!É^{YF}l^{YF}Ć^{YF}g^{YF}0^{YF}w^{YF}k^{YF}f^{YF} ' Ć^{YF}ñ^{YF}z^{YF}é^{YF}š^{YF}W^{YF}l^{YF}z^{YF}š^{YF}
K^{YF}2012^{YF}' X^{YF}Y^{YF}l^{YF}t^{YF}é^{YF}š^{YF}%^{YF}Ć^{YF}z^{YF}g^{YF}Đ^{YF}g^{YF}»^{YF}. 10.9^{YF}Ć^{YF}à^{YF}, l^{YF}0^{YF}le^{YF}é^{YF}š^{YF}»^{YF}x^{YF}l^{YF}3^{YF}[^{YF} g^{YF}l^{YF}24.61^{YF}ž^{YF}Ć^{YF}¶^{YF}t^{YF}O^{YF}g^{YF}»
t^{YF}é^{YF}š^{YF}Đ^{YF}g^{YF}»^{YF}. 11.8^{YF}Ć^{YF}¶^{YF}t^{YF}à^{YF}, l^{YF}0^{YF}le^{YF}O^{YF}g^{YF}»^{YF}x^{YF}l^{YF}3^{YF}[^{YF} a^{YF}l^{YF}26.7^{YF}z^{YF}l^{YF}' z^{YF}š^{YF} ^^{YF}lez^{YF}š^{YF}ž^{YF}Y^{YF}x^{YF}»^{YF}%^{YF}á^{YF} z^{YF}l^{YF}ĩ

(ãnyW2014Ug!h^{3/4})XY:Z

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gzlyÂ^YIK} 4l@ðzš; O Žzlãß0tg, ezl«™tg, eô^YèKz lat à, lðleOg»yzš
XUq l: OKè^Y»l à, ðleOg»
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] CŠšzXUè^YšcfyžYð%gzlzlšcfè^Yf ' iX^Y™yagš / †tè^YAW\$îñ
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kšzle^YwE lk*4tX^Y† žz% wE IXq%wE lô^Ykš3 Xz>tH• 100zž..
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4X^Y†Â%wE lkËyW^Y^lgzla ^lwE l»ktYBšb7ô^Yw, tyeL(10yW5)
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zli m{XY†hz»™~glpZgš) fX^Y™ÈYÿt *g»š†tXÂ~^Ycg ózL↓>ô7 gzlhz³ ,
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WYq.ã\$0} %f òiñtè^Ytu^Ypž% ^lhzCžž, @ca 37 ^l^zzKM%lbaô^YIK

10l3tZlé K2013K, 6gt d lzhlg] uDIX äæ° 46.3»Z™Yzl53.7»Z™tKy

Xéæ° 45KYzlæ° 55 KtXkÆYrÈi, YèGtf žé

XiG@xLz6 »%àEGkf ' l

zlwE lW1/2 zlu gpkf Ç0yW 1994(27t 2-8g-zl35) o 36î K2013Pa30

yÂÛ-ZlY366zl k*ly27yW, t# Ó36SX =-gà t èG—gš—à zlé Gyž! ztîñ

wE lwlcu gPJ;)wE l1/2918zlwE lyl u gP1321yGžé -gà t2833ÀgZl

cgĀ! t- (131) 1/2 (146) lS (Ø Ū-l@k CŽ 0 žž 165)M%3yZhSX éY(W

W*g»t èG{-zzlcémÜš £ěžX =-gà (71) 2-8g-(83) šE-iE(93) ^, l(103)

yWĀ-gà th} Ć(52)i b! t- zl(55) u (59) 1/4(65)yLÇ@(68) í Ÿ(zlu|

30y»o 12) ŃO (31y 1/10) NNO(49y»o 22) Kk 3/4 (Ū-l) 130 0 27) Yšcf

wzōžš; a1Ńzy 1/2 SX é-gà i, ěžk Ū-lūÀš (Ū-l27y»o 26) Ī cĪzl(Ū-l

zl* tĀhŃž è t; O žzl(27 2-8g-X-gà 41 y»24) 2-3-40) ölKY -Ī cĪ

Æ+l -lth »| {Ois ŪtōžšŃž è Py» a1Ńzy 1/2 zl(27 2-8g-49y»23) 810+l

8g-gà 45y»o 21) 11K 0 -lh" s ŪtO ž(27 2-8g-zl-gà 27y»o 22) 603

y» a1Ńzy 1/2 zl(27 2-8g- -gà 45y 20) 1507 0 -lh" s ŪtO ž(27 2-

a1Ńzy 1/2 zl(27 2-8g-Ū-l41y»o 19) 21} lY) -lth »| {Ois ŪtōžšŃž è

27 2-8g- -gà Ū-l37y»o 19) 2704-12} tflĪ cĪ »| {Ois ŪtōžšŃž è Py»

»" s ŪtO ž(27 2-8g-Ū-l36y»o 19) 89034+lzl* t-lh" s ŪtO ž(

s ŪtōžšŃž è Py» a1Ńzy 1/2 zl(27 2-8g- -gà 36y 17) 531+lzl* t-l k 3/4

" s ŪtO ž(27 2-8g- -gà 35y»o 19) 88017+lzl* lh" s ŪtO ž 0 »| {O

(27 2-8g- -gà 34y»o 15) 1445+lzl* l -lk 3/4 »

Xö°le 0%l[gl15.6C3KbŠt\$F ' lú K2013

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t#f' i^{VEE} (g azl^{VEE} àzl: Š f ÇI) glzla - #tg azl^{VEE} t• xgĀt yj XU y^{VEE} gŠY
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utμ Y} l^{VEE} tYB (ÇIK^{VEE} è^{VEE} t^{VEE} ūzl l^{VEE} 20 u^{VEE} z^{VEE} pt^{VEE} > l^{VEE} e^{VEE} ®gzK2013

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} gl»ĪxĀ; B^{VEE} (ÇI) tY2013e^{VEE} TM*g»K^{VEE} 1Fā^{VEE} Ū^{VEE} Āμ y^{VEE} Ź! ø^{VEE} Šž^{VEE} l^{VEE} ®g^{VEE} Ē^{VEE} t^{VEE} u^{VEE} z^{VEE} p
Xk^{VEE} y^{VEE} gŠhz^{VEE} t^{VEE} Ā^{VEE} Ā: Šzi MĀkô^{VEE} Ź {Š^{VEE} TMg» ^ hz^{VEE} C»z^{VEE} Ź

8p^{VEE} Ūe) u^{VEE} Ņ^{VEE} 1ō^{VEE} t^{VEE} »Ī ò^{VEE} Ā. āKY1970zl»z^{VEE} TM^{VEE} e^{VEE} x•@k^{VEE} *LY/SÇIzl»z^{VEE} TM^{VEE} Ź^{VEE} t^{VEE} x^{VEE} l^{VEE} e^{VEE} ®gz
t^{VEE} x^{VEE} l^{VEE} e^{VEE} ®gz} li B^{VEE} (ÇI) y^{VEE} l^{VEE} μ^{VEE} 0X s^{VEE} Ū^{VEE} @k^{VEE} *LYž} g0^{VEE} (TM^{VEE} y^{VEE} gŠY] Ñi^{VEE} K(c&îĀ
zlè^{VEE} t^{VEE} u^{VEE} z^{VEE} pK*Šî [Šgz^{VEE} l^{VEE} 0^{VEE} {gt^{VEE} N~ft^{VEE} ^ ÷} Šž^{VEE} } g0^{VEE} è^{VEE} Šž^{VEE} q%^{VEE} ò^{VEE} z^{VEE} gl^{VEE} ^ l^{VEE} w^{VEE} »ĪxĀ
XY~gz^{VEE} Çμ^{VEE} g^{VEE} ki^{VEE} y^{VEE} , z^{VEE} t^{VEE} j Kμ^{VEE} Ā^{VEE} ė

%^{VEE} , è^{VEE} t^{VEE} è^{VEE} t^{VEE} eg^{VEE} -l^{VEE} D; B^{VEE} (ÇI) u^{VEE} TM^{VEE} g^{VEE} à^{VEE} t^{VEE} *Š^{VEE} ô] yl, t^{VEE} x^{VEE} l^{VEE} e^{VEE} ®gzKY2013u^{VEE} Ņ^{VEE} 1
~^{VEE} b^{VEE} ^^{VEE} ; z^{VEE} gg^{VEE} z^{VEE} l^{VEE} e^{VEE} ®gz se~÷^{VEE} 0Ī t^{VEE} ű^{VEE} y^{VEE} z^{VEE} ug^{VEE} āK [Šk^{VEE} TM] z^{VEE} g^{VEE} z^{VEE} k^{VEE} TM^{VEE} , g^{VEE} Š^{VEE} k^{VEE} ā^{VEE} Ź%^{VEE} azl [z^{VEE} ž^{VEE} k^{VEE} l^{VEE} p
gt^{VEE} è^{VEE} h^{VEE} t^{VEE} 0^{VEE} l^{VEE} *^{VEE} ç^{VEE} 0^{VEE} z^{VEE} v^{VEE} l^{VEE} Ky^{VEE} M^{VEE} Y1970»ĪxĀ] 0^{VEE} l^{VEE} ^^{VEE} TM^{VEE} *g^{VEE} »è^{VEE} l^{VEE} %^{VEE} o^{VEE} K^{VEE} , %^{VEE} ••@k^{VEE} SÇIzl ž
KY1974y^{VEE} h^{VEE} 0^{VEE} »^{VEE} TM^{VEE} *g^{VEE} »Āhz^{VEE} Ī t^{VEE} ű^{VEE} y^{VEE} z^{VEE} ug^{VEE} ā} TM^{VEE} x^{VEE} ¥^{VEE} b^{VEE} , t^{VEE} hz^{VEE} •^{VEE} Ď^{VEE} l^{VEE} e^{VEE} K^{VEE} k^{VEE} Y^{VEE} z^{VEE} n^{VEE} w^{VEE} Ď^{VEE} t^{VEE} ç^{VEE} 0^{VEE} z^{VEE} g
x^{VEE} ¥^{VEE} t^{VEE} *g^{VEE} »gz^{VEE} ^^{VEE} ā {Šgz^{VEE} U) Š(ó^{VEE} i^{VEE} ö^{VEE} • -&^{VEE} %^{VEE} k^{VEE} -ö) ó^{VEE} i^{VEE} ö^{VEE} M^{VEE} k^{VEE} ç^{VEE} 0^{VEE} z^{VEE} } TM^{VEE} x^{VEE} ¥^{VEE} Šgz^{VEE} “^{VEE} z^{VEE} l
Šž^{VEE} } TM^{VEE} x^{VEE} ¥^{VEE} è^{VEE} Ī Š^{VEE} K^{VEE} C~g^{VEE} Š^{VEE} x^{VEE} ¥^{VEE} t^{VEE} z^{VEE} l^{VEE} z^{VEE} l^{VEE} e^{VEE} ®gz se~÷^{VEE} U^{VEE} gl^{VEE} M^{VEE} K^{VEE} D^{VEE} K^{VEE} 1D^{VEE} ç^{VEE} 0^{VEE} z^{VEE} } TM^{VEE} è^{VEE} ~g^{VEE} Š
4Š^{VEE} Ky^{VEE} l^{VEE} æ^{VEE} t^{VEE} - Ď^{VEE} l^{VEE} @^{VEE} K^{VEE} 1g^{VEE} F^{VEE} z^{VEE} Ź} gl({^{VEE} l^{VEE} +^{VEE} l^{VEE} ~^{VEE} e^{VEE} K)} l^{VEE} +^{VEE} l^{VEE} ~^{VEE} e^{VEE} c^{VEE} R(i^{VEE} H^{VEE} Ī)] j Ď^{VEE} t^{VEE} ó^{VEE} i^{VEE} ö
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