

)RRG %LRWHUURULVP

%HWW\ :HGPDQ 6W /RXLV

/LFHQVHG 1XWULWLRQLVW DQG (QYLURQPHQWDO +HDOWK 6SHFLDOLVW 86\$

&RUUHVSROQWLQBLWW\ :HGPDQ 6W /RXLV /LFHQVHG 1XWULWLRQLVW \$QWKLUDLQG (QYLURQPHQWDO +HDOWK 6SHFLDOLVW 86\$

/DUJR)/ 7HO)D[GU EHWPOLEHWW\ ZHGPDQ YWORXIV FRP

5HFHLYHG -GQWBIU\ \$FFH\$WEWGXGDGLWH 3XE OOLDMKHKG GDWHL

&RS\ULJKW \ 6W /RXLV %: 7KLV LV DQ RSHQ DFFHVV DUWIRIGGVWWSLOXWHDQXW\ KUDWKFHDVQHUPM RFH

GLVWULEXWLRQ DQG UHSURGXFWLRQ LQ DQ\ PHGLXP SURYLGH WKH\ UHWDQH DQG DWWURQW\ XWVH

\$EVWUDFW

3RWHQWLDO 3ORWV RQ 86)F

\$QWKLUDLQG (QYLURQPHQWDO +HDOWK 6SHFLDOLVW 86\$

7ZR LQGHSHQGHQW SORW LGH

ELRFKHPFLDO DJHQW WR SURGXFH

FWDQHRYVOP\ JDWWURQW\ XWVH

2QH VFKHPH XVHG VSRUH FRQW

6LQFH LW LV GLIILFXOW WR NLOO

WURXJK ZRUNHUV QRW YDFFLQDW

(YHVLQFH SWHPEHU \$PHULFDQ VRFLHW\ KDV KDG LQFUHDVHG DZDUHQHV
SRVVLEOH WKUHDW RI DQRWKHU WHUURULVW DQHWDW\ FRQQ\&TXNRLQW 7KFRQHDFLQH
VDIHVVW IRRG VXSSO\ LQ WKH ZRUOG ZKLOHWDUH UU RRURLQW WFLWQH HVISRUPDQW WHSHRUHIS/

FULWLFL]HG WKH XE\WWA WI WKH WR@ WBWWKURXJK WRA LUWDLJ\ WGRQXRVWWWW

&HQWHU IRU)RRG 6DIHW\ DQG \$SSOLHG 1XWULWLRQ DQG &90 &HQWHU IRU

9HWHULQDU\ OHGLFLQH VLQFH WKH\ KDYH GUDZQDWWKHWLSRQW DQG UHVRXUFH W

DZD\ IURP)' \\$ V DELOLW\ WR GHYHORS WKH\ WFLZKHPH EDVHGQH QWJ\ WWDJ\ JRI O

QHHGHG WR HIIFLHQWO\ SURYLGH URXWLQH\ DQFH\ DQG\ HPHUJHFER

LQYHVWLJDWLRQV WR SURWHFW WKH \$PHULFDQ PRQHUVXPWR SDVWDPLWDQHGRQ\ Z

WHUURULVW JURXS FURVVHV LQW

6FLHQFH DQWQHFDU\ SRZGHU WR WKH IORXU P

\$Q DVVLJQPHQW IRU ODVWHUV RI 6FLHQFH WFXWHLW\$RQWVQHGDWY1HQ FR

<RUN &KLURSUDFWLF &ROOHJH LQ)RRG 6FLHQFH QRXYHFRF\ VHGK\ RUWKLHQH

VHFUXULW\ RI RXU IRRG VXUYHLOODQFH V\WW\WR (QRK DWWRHDW\ ZDWHW\ BOH\ YRPR/SR

WHUURULVW VFKHPH WKDW ZRXOG DIIHFW\ SURGIXPSWLRQ\ GRIVWKSPLU DIHO QDWX

ELRFKHPFLDO DJHQW FRXOG EH IRRG RU ZDWHU EDVHG DQG QHHGHG WR EH

VXILFLHQW WR SURGXFH D UHDOLVWLW WKUHDW WKDW ZRXOG FRPSURPLVW

FRQILGHQFH LQ RXU IRRG VXSSO\ VWDJJHULQJ 7KRVDQGV RI SHRSR

7HQ RXW RI WKH WZHQW\ VVXGHQWV SURYLGH RXWVWDQGLQJ IRRG DQG

ZDWHU WHUURULVP VFKHPHV WKDW LOOXVWUDWHG KRZ HDV\ ELRORJLFDO ZHDSRG

FRXOG FDXVH PDVVLYH LQMXULHV HFRQRPLF GLVUXSWLRQ DQG HURGH

FRQILGHQFH LQ WKH IRRG VXSSO\ 7DEOH

5LFLQ

5LFLQ LV D SURWHLQ WR[LQ IRXQG LQ WKH SXOS RI FDVWRU EHDQ SODQWV > @
 2QFH ULFLQ HQWHUV WKH FHOOV RI WKH ERG\ LW LQKLELWV FHOOV IURP PDNL
 SURWHLQV WKH\ QHHG WR VXUYLYH \\$V FHOOV EHJLQ WR GLH WKH RUJDQV EHJ
 VKXWWLQJ GRZQ DQG WKH ERG\ GLHV > @ 5LFLQ FDQ EH LQJHVWHG LQKDOHG R
 LQMHWLQH DV D WR[LQ ZLWK GLIIHUHQW V\PSWRPV UHVXOWLQJ IURP WKH URXWH
 H[SRVXUH > @ 7KH PRVW GHDGO\ IURP RI ULFLQ LV WKH SXULILHG SRZGHUHG
 IRUP DQ DPRXQW WKH VL]H RI D SLQKHDG FDQ NLOO DQ DGXOW > @

%LRORJLF	06\$B\$0\$WPV	&RQWDPLQDWLRQ
\$QWKUD[9RPLW GLDUUKHD V\PSWRPV	QDUXDVLQD\ FOXU KODLNH IORXU
5LFLQ	9RPLW GLDUUKHD 'HK\GUDWLRQ VHL]XUHEWIIHW %HHU EUHZHU\ +\SRWHQVLRQ)RRGMD XW\$HDD\HG RQ
6KLJHOOD	9RPLW GLDUUKHD PXFXV VWRRO	FODRSGXQH)WHFFMLRQ RI VXSHUPDUNHW
&ORVWULGL &U\SWRVSR	XPRPLW K\SHU VHFUH UVGLW\RP VKXW GRZQ \$EGRPLQDO 3DLQ)HYRQWR SURGXKFH VXSHU PDUNHW	WDLVRQ VRIGI WMRVWDXUDQW 98RWWOLQDXXPHD 6SUD\
6DLWRLQ	/XQJ SDUDO\VLV 'HD WKRFLQV&UD	DHG DV DHURVRO LQ
&RPSRXQG 6RGLXP 0RQRIOXUR	+\SRWHQWLRQ \VU\WKPLDV 5HVSLUD	36HIS]DXWIIHG D:\WU\UVW\XSS\O\)UXLW -XLFHV

7DEOHRRG DQG :DWHU %LRWHUURULVP \$JHQWV

0RVW V\PSWRPV DVVRFLDWHG ZLWK LQJHVWLQ RI ULFLQ PDNH D SHUVRQ
 EHOLHYH WKH\ KDYH IRRG SRLVRQLQJ RU D IOX VR WUHDWPHQW ZRXOG EH
 GHOD\HG DQG GHDWK VRRQ IROORZV

\$ QRYHO LGHD RI XVLQJ ULFLQ DV D WHUURULVW SORW LQYROYHV WZR SRVVLE

&LWDW16RWQ/RXLV %:

)RRG %LRWHUURULVERL%LRWHUURU %LRGHI

3DJH RI

6D[LWR[LQ

SURYLGH ZDWHU VHUYLFHV WKH 86 SRS

\$UJXDEOL WKH VHVH VIVWHPV UHSUHVH QW W
DEVRUHG KLJK FRQFHQWUDWLRQV RI UHG WLGH YKLV KDUPIXO DOJDH EORR
LV UHVSQRQVLEOH IRU LVRODWG GHDWKV DQG URAKFAWHRARL & RSPRSRVRQDQ JZ
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DUH DOVR D VRXUFH RI VD[LWR[LQ UHDFK WKRXVDQGV RI \$PHULFDQV XQGHW

VHW LQ 7KH ODFN RI DQ HIIHFWLYH DQW
GLQRIODJHOODWHV LQ D UHPRWH RU XQGHUJURXQG PDULQH ZDWHU VRXUFH 2QF
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DLUSODQHV WUDLQV RU EXVHV %UHDWLQJ WKLW VD[LQ FDXVHV SDUDOVLV LQ
OXQJV ZKLFK OHDGV WR GHDWK E\ DVSKV[L\$DIUH VRFLHWI ZLOO DOZD\V KDYH H[S

\$V D WDVWHOHV FRORUOHVV WRLQJ DQG VDQH DQG VHW VHW VHW
LQ WKH V DQG XVHG LQ D FDSVXOH YIRQW DQG VHW VHW
SLORWV \$ WHUURULVP SORW RI VSUDQJQXW VHW VHW
UHDOLVWLF DQG GLIILFGH @pp€PRQLTx DQG WZRQH DQG ZPDWHLW
WHVWLQJ LV WKH RQO\ NQRZQ PHDQV RYHFDQXW VHW QWKDQW VHW DQJLHW PWDQW
WKLV WLPH KDYH QRW EHHQ WDNHQ WR IRUHVHH KRZ
IRRG VXSSO\ VDIH IRU DOO \$PHULFDQV

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VROG DV D SHVWLFLGH IRU URGHQW FRDQW VHW 6XEFPRPLWVHHRP 6FLHQFH DQG 7HFKQ
FRORUOHVV RGRUOHVV DQG OLJKWO\ ZDWHU DQG VHW 6XEFPRPLWVHHRP
WKH IRRG VXSSO\ 7KH & GRHV QRW LQGLFDWH DQG ELRORJLFDQZBULFRORJ
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&HQWHU IRU 'LVHDVH &RQWURO DQG 3UHYHFDQW DQG GHVWDELOLHV WKH OLSLG E

5HSHDWG ORZ GRVH HSRVXUHV FDQ EH DQG DQJ WK&QFWKHJPLFDO 'LV
YHUI GDQJHURXV IRU WHUURULVP VFKHPA &OLQLFDQ HIIHFWV GHYHORS
PLQXWHV WR KRXUV DIWHU HSrvxuh E\ DQG DQJ E\ FGQHOKHGWBLFORQJWVQ RI
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LQ D SRZGRUURGOLNH WKH RQD LQD VDQW RI 6DGGDP
+XVVHLLQ V FKHPFDQ WHUURULVP QDFFXQHFRPSWVHWRSDWHLQWVZLWKHZJDVWURHQ
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DV D WHUURULVP DJHQW LQFOXGH DGGLQJWVKAH ISRQDQHJLWVWUHGDWQD
UHVWDXUDQWV RU FDWHUHG H&KHO WFDQVWVHJLQDQDOLWV LQWR IUXLW MXLFH RU SXQ
SDUW\ RU LQWURGXFGH LQWR &RPSRXQG\%3HJLQDQWVLPN DQG ZDWHU LQIUDVWUXFWUH VHFWRU &RQJUHVVLQDO 5H

\$ UHSRUW E\ &RQJUHVVLQDO\ 5H VHWUWFKV6H 66L FH VWDWHV

\$ IDLUOI VPDOO QXPEHU RI ODUJH ZDWHU DQG ZDVWHZDWHU
XWLQWLHV ORFSWVHULQO\ LQ XUEDQ DUHDV DERWWWKH VIVWHP