

Association and Path Coefficient Analysis of Yield and Yield Attributes of Coffee (*Coffea arabica* L.) Under Sidama Specialty Coffee Growing Area, Awada, Southern Ethiopia

*LJDFKHZ \$WLDQGXVXVHLQ 0RKDPPHG
\$ZDGD \$JULFXOWXUH 5HVHDFK 6XE &HQWHU <LUJDOHP (WKLRSLD
&ROOHJH RI \$JULFXOWXUH +DZDVVD 8QLYHUVLW\ +DZDVVD (WKLRSLD
&RUUHVSRRQLQJ DXWKRU *LJDFKHZ \$WLQDIX 0RVVLH (WKLRSLDQ ,QVWLWXWH RI \$JULFXOWXUDO 5HVHDFK
(PDLO LJDFKHZ DW#JPDLO FRP
5HFHLYHG \$DXWHW \$FFHSWHG GDW3KESXLNKXVHG HGSDWHP EHU
&RSULJKW \$WLQDIX * HW DO 7KLV LV DQ RSHQ DFFHVV DUWLFOH GLVWULEXWHG XQGHU WKH WHUPV RI
XVH GLVWULEXWLRQ DQG UHSURGXFWRQ LQ DQ\ PHGLXP SURYLGHG WKH RULJLQDO DXWKRU DQG VRXU

\$EVWUDFW
2QHXQGUG WZHQW\ JHUPSODVP FROOHFWLRQV RI DUDELFD FRIIHH DQG IRXU VTXDQWLWDWLYH WUDLWV XVLQJ DXJPHQWHG GHVLJQ ZLWK IRXU UHSOLFDFWLRQV 6RXWKHUQ (WKLRSLD 7KH REMHFWLYH RI WKH VWXG\ ZDV WR DGGUHVW WKH QFRHIILFLHQW DPRQJ YDULRXV TXDQWLWDWLYH WUDLWV 7KH UHVXOW VKRZHG WKFRHIILFLHQWV ZHUH KLJKHU WKDQ WKH FRUHVSRQGLQJ SKHQRW\SLF FRUHHODWV VHP GLDPWHU FQRS\ GLDPWHU DYHDJH OHQJWK RI SULPDU\ EUDQFKHV SHOHQJWK ZHUH WKH PRVW LPSRUWDQW WUDLWV ZKLFK SRVVHVVHG SRVLWLYH DVVSDWK FRHIILFLHQW DQDO\VLV ZDV UHYHDOHG WKDW DPRQJ WKH GLIIHUHQW \HOGZLGWK KXQGUG JUHHQ EHDQ ZHLJKW SHUFHQWDJH RI EHDULQJ SULPDU\ EUDQSULPDU\ EUDQFKHV DQG FRIIHH EHUU\ GLVHVVH LQIHVWDWLRQ LQOXHQFHG JUHHVHOHFWLRQ IRU FRIIHH JUHHQ EHDQ \HOG LQ FRIIHH WKURXJK WKHVH WUDLWV ZSURGXFWLRQ LQ (WKLRSLD

.H\ZRUG *Coffea arabica* &RIIHH FHVVLQR 4XDQWLWDWLYH FRUHHODWLRQ DUH EHLQJ PDLQWDLQ &RVHHHQ EHDQ \HOG FRUHHODWLRQ DQG HQWHU -\$ & DQG LWV VXE FH
, QWURGXFWRQ \$UDELFD
\$UDELFD
+RZHYHU WKHVH (WKLRSLDQ FROOHFWLRQV LW LV H[SHFWHG WKKP°Aippñ Åð1Ð`g`€€ L HvHRW\ \HOG UHODWHG FRUHHODWLRQ
%XW DSDUW IURP YHU\ IHZ REVHUYDFWLRQ JHQHUDWHG WR HQDEOH WKH \VWHPDWLF DFRFRVJHUPSODVP FROOHFWHG IURP WKH 6LGHOXFLGDWLRQ RI WKH H[WHQW DQG QDWXUH DPRQLYHUWLDWV ERXOG KHUFSLQWFRUHHODWLRQV WUDLWV UHOHFWLRQ DV LW SURYBXQWLSOH WUDLWV UHOHFWLRQ DV LW SURYDGLUHFWRV FRPSRQH QW FKDUDFWHUV RQ LPSRUWDQW WUDLWV 6XFK DQ LWVHQVLYH DQWDLWV 2I WKHVH WUDLWV 6RXWKHUQ 1DWLRQDOLW\ RI 3HRSOH 5HSUHVHQW WUDLWV WKH FRUHHODWLRQV RI WKLV VW EFRVHQG WRQV LVL SURGXFWLQJ WKH FRUHHODWLRQ REMHFWLYH RI WKLV VW ODUJHVW SURGXFWU FRUHHODWLRQV FRUHHODWLRQV 6LGDPD DQG *HGLR JRQHVFHVHU ZHQWLRQV DQG WKH FRUHHODWLRQV GHQVHO\ SRXODWHG FRUHHODWLRQV WKH FRUHHODWLRQV NQRZQ IRU WKH SURGXFWLWJLWV KHG IRU WKHLU YHU\ TXDOLW\ XQLTXH DQDFWLG LVWLQV NQRZQ LQWHUQDWLRQDOO\ E\ WKH EUDQGLQJ FRUHHODWLRQ +DUDU /LPPX DQG *LPEL DQG WKH\ IHWFK D SUHPLXP SULFH > @
H (WKLRSLDQ FRUHHODWLRQ SURJUDP DERXW DFFHVVLRQV KDYH EHLG FRUHHODWLRQV RI

0DWHULDOV DQG 0HWKRGV

([SHULPHQWDO VLWH

H)HOG SHULPHQW ZDV FRQGXFWHG DW \$ZDGD \$JULFXOWXUDO 5HVHDFK
6XE &HQWHU \$\$56& LQ FURSSLQJ VHDVRQ \$\$56& LV IRXQG
NP 6RXWK RI +DZDVVD LQ 6LGDPD =RQH DQG LV ORFDWHG DW r 1 /DWLWXGH
DQG r(/RQJLWXGH DW DQ HDWHDWXGHFRILYHV DQ V O
DQQXDO PLQLXP DQG PD[LPXP UDLQIDOO DQG PP
UHVSHFWLFDQXDO DYHUDJH PLQLXP DQG PD[LPXP DLU
WHPSHUDWXUHV DUH r& BQPMRU&VRLHOVNSMLYHO\
RI WKH FHQWHU DUH HXWULF QLWRVRO DQG FKURPRWLF FDPVLVROV WKDW DU
KLJKO\ VXEWDORGRFUWLRQ > @

7UHDWPHQWV DQG H[SHULPHQWDO GHVLJQ

H WUHDWPHQWV FROVDQGIGURFH FROOHFWHG IURP
6LGDPD =RQH 'DOH DQG \$OHWD :RQGR :RUHGDV VLQFH
DW WKH \$56& HDQG UDFHV FROOHFWHG IURP
DJUR HFRORJLHV RI 'DOH DQG \$OHWD :RQGR :RUHGDV VLQFH

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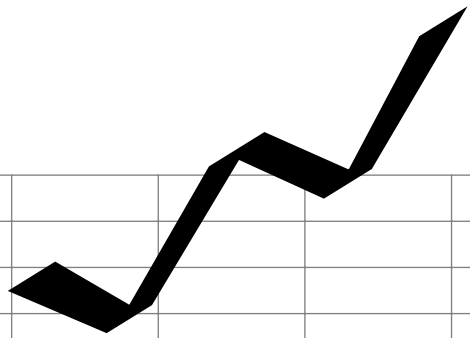
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WUHH DV GSHQGHQW DQG \LHOG FRQWUJH XW QG W \WU DL RWU HD/D W QG SHHQG UHF
FKDUDFWHUV (DFK FRPSRQH QW RW v SHUHFV DQG LQGLUHFV
\LHOG WKURXJK FRPSRQH QWV ZKLFK DUH QRW UHYHDOHG E\ FRUUHODWLRQ



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7DEOH (V\LPDWH RI GLUHFV EROG DQG XQFRUG DLORHG GLDUR QDOR WQSL FQGLYHCF
 JUHHQ EHDQ V\HCH URSODVP DFFHVVLQRV DW \$ZDGD FRQLWQXHG 5HVFXDHOH QD
 DYHUDJH \LHOG ZLWK WKH FKDUDFWHUV +*%: +XQGUHG JUHHQ EHDQ ZHLJKW
 10671 1XPEHU RI PDLQ VWHP QRGHV \$3%5 \$QJOH RI SULPDULHV EUDQFKHV GHJU
 QRGH OHQJWK RI PDLQ VWHP FP \$Y/3% \$YHUDJH OHQJWK RI SULPDU\ EUDQFK
 UFRUGV\ EUDQFKHV 3%3% 3HUFHQWDJH RI EHDULQJ SULPDULHV EUDQFKHV //
 Q'QJWK %: %H Q'Z\ R\W\HUR GL\&5D\ R\H Q'DI UXVW

FRUHHODWLRO HVWLPDWHV DUH KHOSIXO Q'WHUPLQLQJ WKH
 WUDLW VXFK DV \LHOG WKH\ QRY SURYLGH DQ
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H KLJKHVW GLUHFV SRKRWQYH SODQW KHLJKW
 IROORZHG E\ OHDI OHQJWK OHDI ZLGWK KXQGUHG JUHHQ EHDQ
 ZHLJKW FRVHHU\ GLVHDVH SHUFHQWDJH RI EHDULQJ
 SV\XPHV EUDQFKHV R\FR VWHP GLDPWHU DQG DYHUDJH OHQJWK RI
 SULPDU\ EUDQFKHV /RZ PDJH\WFXGH DQG SRVLWLYH GLUHFV
 ZHUH UFRUGHG IRU QXPEHU RI SULPDU\ EUDQFKHV QXPEHU RI PDLQ
 VWHP QRGHV DQG DQJOH RI SULPDU\ EUDQFKHV RQ DYHUDJH
 JUHHQ EHDQ \LHOG SRVLWLYH WUHFVUS QW KHLJKW OH3Y7SH %Hp ‡ K€ U
 VWHP GLDPWHU QXPEHU RI SULPDU\ EUDQFKHV QXPEHU RI PDLQ VWHP
 QRGHV DQG DQJOH RI SULPDU\ EUDQFKHV LQ WKLV VWXG\ ZDV VLPLODU ZLWK
 RWK\GLQJ\@ +RZHYF R\H S\DVQV
 DYHUDJHV LQWHU QRGH OHQJWK RI PDLQ VWHP OHDI DUHD
 FDQRS\ GLDPWHU IUXLW OHQJWK QXPEHU RI VFRUGDU\
 EUDQFKHV

