

> @ L 1 0 A 3 ; N : 0 < 8 iRoast2

; 0 4 8 < 8 @ 0 2 @ 8 ; > 2 , ! @ 5 4 0 2 0 / = 2 0 @ L 2 0 1 0 - 1 5 : 3 6 : 0 0

> @ L 1 0 A 3 ; N : 0 < 8 iRoast2

A O 6 8 7 = L 1 > @ L 1 0 8 3 ; N : 8

% 0 : 5 @ A : 0 0 = 0 @ > 4 = 0 0 < C 4 @ > A B L

> B C 6 5 3 > 4 O 2 ; O N A L > 1 ; 0 4 0 B 5 ; 5 < 1 K B > 2 > 3 > : > D 5 - @ > A B 5 @ 0 A  
< 8 : @ > ? @ > F 5 A A > @ = K < C ? @ 0 2 - ; 5 = 8 5 < iRoast2. ! 5 9 G 0 A , : > 3 4 0 C = 0 A  
2 A B @ 0 = 5 ? > O 2 8 ; > A L 4 > A B 0 B > G = > 5 : > ; 8 G 5 A B 2 > > 1 ; 0 4 0 B 5 ; 5 9  
M B > 3 > 0 3 @ 5 3 0 B 0 8 2 K O 2 8 ; 8 A L = 5 : > B > @ K 5 5 3 > > A > 1 5 = = > A B 8 ,  
= 0 7 @ 5 ; 0 = 5 > 1 E > 4 8 < > A B L A 2 5 A B 8 2 > - 5 4 8 = > 7 0 < 5 G 0 = 8 O ? > 5 3 >  
@ 0 1 > B 5 , G B > 1 K = > 2 8 G : 8 < > 3 ; 8 1 K A B @ > ? 5 @ 5 2 5 A B 8 5 3 > 2  
4 5 9 A B 2 8 B 5 ; L = > @ 0 1 > G 5 5 A > A B > O = 8 5 8 7 B > 3 > 8 ; ; N 7 > @ = > 3 > , 2  
: > B > @ > < > = ? > A B 0 2 ; O 5 B A O ? > B @ 5 1 8 B 5 ; N . ; ; N 7 > @ = > 3 >  
? > B > < C , G B > C = > 2 8 G : 0 , 2 ? 5 @ 2 K 5 7 0 = O 2 H 5 3 > A O 4 > < O H = 5 9  
> 1 6 0 @ : > 9 , A : ; 0 4 K 2 0 5 B A O 8 ; ; N 7 8 O , G B > @ > A B 5 @ E > @ > H > 6 0 @ 8 B  
: > D 5 8 8 < < > 6 = > : 0 : - B > C ? @ 0 2 ; O B L . 5 9 A B 2 8 B 5 ; L = > , @ > A B 5 @  
1 C 4 5 B E > @ > H > 6 0 @ 8 B L : > D 5 , 8 8 < < > 6 = > 1 C 4 5 B B > = : >  
C ? @ 0 2 ; O B L , = > 4 ; O M B > 3 > = 0 4 > ? @ > 8 7 2 5 A B 8 = 5 : 8 5 < 0 3 8 G 5 A : 8 5  
4 5 9 A B 2 8 O ? > 5 3 > = 0 A B @ > 9 : 5 8 C G 8 B K 2 0 B L = 5 : > B > @ K 5 D 0 : B > @ K  
? @ 8 5 3 > M : A ? ; C 0 B 0 F 8 8 .

@ 8 2 5 4 5 = 8 N @ > A B 5 @ 0 2 @ 0 1 > G 5 5 A > A B > O = 8 5 8 ? > A 2 O I 5 = 0  
4 0 = = 0 O A B 0 B L O . 0 = 3 ; > O 7 K G = > < = B 5 @ = 5 B 5 5 A B L > 1 7 > @ = K 5  
< 0 B 5 @ 8 0 ; K ? > M B > < C @ > A B 5 @ C ( = 0 ? @ 8 < 5 @ ,  
<http://home.surewest.net/frcn/Coffee/iRoast2.html> , <http://www.coffeegeek.com/proreviews/firstlook/iRoast2> ) , 2 : > B > @ K E  
? @ 8 2 5 4 5 = > < = > 3 > 8 = B 5 @ 5 A = K E D 0 : B > 2 , = 5 > B @ 0 6 5 = = K E 2  
8 = A B @ C : F 8 8 , = > > = 8 > ? O B L - B 0 : 8 > B = > A O B A O :  
@ 0 1 > B > A ? > A > 1 = > < C 2 ? > ; = > < A < K A ; 5 M B > 3 > A ; > 2 0 @ > A B 5 @ C .  
> 7 < > 6 = > , = 0 8 E ? @ > 4 2 8 = C B K 9 7 0 ? 0 4 = K 9 @ K = > : B 0 : > 2 K 5 8  
? > A B 0 2 ; O N B A O . > ; 5 5 B > 3 > , < = 5 @ > A B 5 @ B > 6 5 1 K ; ? > A B 0 2 ; 5 = 2  
? @ 8 = F 8 ? 5 @ 0 1 > B > A ? > A > 1 = K < , = > 2 > B ; N 4 O < , : > B > @ K < O 5 3 >  
@ 0 7 @ 5 ; ; 0 < 8 @ > 2 0 ; , ? > 2 5 7 ; > < 5 = L H 5 . ' 0 A B L > 1 = 0 @ C 6 5 = = K E  
3 ; N : > 2 @ > A B 5 @ 0 ? > 4 4 0 5 B A O C A B @ 0 = 5 = 8 N , : G 0 A B 8 < > 6 = >  
? @ 8 A ? > A > 1 8 B L A O , C G 8 B K 2 0 O 8 E ? @ 8 M : A ? ; C 0 B 0 F 8 8 @ > A B 5 @ 0 .

B 0 : , 3 ; N : ? 5 @ 2 K 9 = 5 = 0 A B @ > 5 = = K 9 B 5 @ < > 4 0 B G 8 : .  
" 5 @ < > 4 0 B G 8 : 2 0 6 = 0 O 4 5 B 0 ; L @ > A B 5 @ 0 , > 1 5 A ? 5 G 8 2 0 N I 0 O  
A B 0 1 8 ; L = > A B L > 1 6 0 @ : 8 . 8 : @ > : > = B @ > ; ; 5 @ C ? @ 0 2 ; O 5 B  
2 5 = B 8 ; O B > @ > < , > 1 4 C 2 0 N I 8 < = 0 3 @ 5 2 0 B 5 ; L = C N A ? 8 @ 0 ; L , = 0  
> A = > 2 0 = 8 8 4 0 = = K E > B B 5 @ < > 4 0 B G 8 : 0 . @ 8 ? @ 5 2 K H 5 = 8 8  
8 7 < 5 @ 5 = = > 9 B 5 < ? 5 @ 0 B C @ > 9 ? > @ > 3 0 A B 0 1 8 ; 8 7 0 F 8 8 2 : ; N G 0 N B A O  
? > 2 K H 5 = = K 5 > 1 > @ > B K 2 5 = B 8 ; O B > @ 0 , 2 > 7 4 C E 1 K A B @ 5 5 > 1 4 C 2 0 5 B

= 0 3 @ 5 2 0 B 5 ; L , 8 B 5 < ? 5 @ 0 B C @ 0 ? > = 8 6 0 5 B A O . A ; 8 8 7 < 5 @ 5 = = 0 O  
B 5 < ? 5 @ 0 B C @ 0 = 8 6 5 ? > @ > 3 0 , 2 5 = B 8 ; O B > @ @ 0 1 > B 0 5 B = 0 1 > ; 5 5  
= 8 7 : 8 E > 1 > @ > B 0 E , > 1 5 A ? 5 G 8 2 0 O ? @ 8 B > : 2 > 1 6 0 @ > G = C N  
: 0 < 5 @ C 1 > ; 5 5 3 > @ O G 5 3 > 2 > 7 4 C E 0 .

0 A B @ > 9 : 0 B 5 @ < > 4 0 B G 8 : 0 A > A B > 8 B 2 B > < , G B > 1 K 4 0 = = K 5 >  
B 5 < ? 5 @ 0 B C @ 5 , ? @ 8 E > 4 O I 8 5 = 0 < 8 : @ > : > = B @ > ; ; 5 @ , A > 2 ? 0 4 0 ; 8 A  
4 5 9 A B 2 8 B 5 ; L = > 9 B 5 < ? 5 @ 0 B C @ > 9 2 > 7 4 C E 0 2 @ 0 9 > = 5  
B 5 @ < > 4 0 B G 8 : 0 . A 2 O 7 8 A 1 > ; L H 8 < @ 0 7 1 @ > A > < ? 0 @ 0 < 5 B @ > 2  
B 5 @ < > 4 0 B G 8 : > 2 : 0 6 4 K 9 @ > A B 5 @ = C 6 4 0 5 B A O 2 8 = 4 8 2 8 4 C 0 ; L = > 9  
= 0 A B @ > 9 : 5 , : > B > @ 0 O ? > - E > @ > H 5 < C 4 > ; 6 = 0 ? @ > 8 7 2 > 4 8 B L A O = 0  
7 0 2 > 4 5 - 8 7 3 > B > 2 8 B 5 ; 5 .

" 0 : 2 > B , 5 A ; 8 < = 5 @ > A B 5 @ ? @ 8 H 5 ; 1 > ; 5 5 - < 5 = 5 5 = 0 A B @ > 5 = = K < ,  
B > B > 2 0 @ 8 I 0 < , : C ? 8 2 H 8 < 5 3 > 2 A ; 5 4 7 0 < = > 9 , ? > 2 5 7 ; > < 5 = L H 5 .  
E B 5 @ < > 4 0 B G 8 : ? > A B > O = = @ 0 ? > @ B > 2 0 ; < 8 : @ > : > = B @ > ; ; 5 @ C  
> ? > = 8 6 5 = = > 9 B 5 < ? 5 @ 0 B C @ 5 , 2 A 2 O 7 8 A G 5 < @ > A B 5 @ ? > A B > O = = >  
B C ? > 3 @ 5 ; , = 5 2 K E > 4 O = 0 @ 5 6 8 < A B 0 1 8 ; 8 7 0 F 8 8 B 5 < ? 5 @ 0 B C @ K . " . 5 .  
6 0 @ 8 B L - B > > = 6 0 @ 8 ; , : @ 0 4 > A B 8 = 5 8 A : C H 5 = = K E > 1 ; 0 4 0 B 5 ; 5 9  
G C 4 > - 4 5 2 0 9 A 0 , = > = 8 > : 0 : > < @ 5 3 C ; 8 @ > 2 0 = 8 8 ? @ > D 8 ; 5 9  
> 1 6 0 @ : 8 , = 8 > : 0 : > 9 A B 0 1 8 ; L = > A B 8 @ 5 G 8 = 5 H ; > . ! @ 5 4 8  
> 1 ; 0 4 0 B 5 ; 5 9 @ > A B 5 @ 0 4 0 6 5 A B 0 ; 0 A : ; 0 4 K 2 0 B L A O 3 @ C ? ? 0  
? > : ; > = = 8 : > 2 @ C G = > 3 > : > = B @ > ; O > 1 6 0 @ : 8 . 7 ; 8 H = 5 @ C G = > 3 > ,  
A : 0 6 5 < ? @ O < > !

8 @ 8 G 5 A : > 5 > B A B C ? ; 5 = 8 5 . = 5 4 @ O ; 8 < K : 0 : - B > 4 0 2 = > 2 3 .  
% 0 1 0 @ > 2 A : 5 A 8 A B 5 < C @ 0 4 8 > C ? @ 0 2 ; 5 = 8 O A 2 5 B > D > @ 0 < 8 .  
5 H 5 E > 4 K 2 C : 0 7 0 = = > < 3 > @ > 4 5 = 0 @ > 4 4 8 A F 8 ? ; 8 = 8 @ > 2 0 = = K 9 ,  
? @ 8 2 K : ; 8 ? > 4 E > 4 8 B L : = 0 7 5 < = > < C ? 5 @ 5 E > 4 C 8 6 0 B L  
A ? 5 F 8 0 ; L = C N : = > ? > G : C , 2 @ 5 7 C ; L B 0 B 5 G 5 @ 5 7 = 5 : > B > @ > 5  
2 @ 5 < O 2 : ; N G 0 ; A O ? 5 H 5 E > 4 = K 9 7 5 ; 5 = K 9 , 8 > = 8  
4 8 A F 8 ? ; 8 = 8 @ > 2 0 = = > ? 5 @ 5 E > 4 8 ; 8 C ; 8 F C . K = 0 M B 0 ? 5 > B ; 0 4 : 8  
M B C : = > ? > G : C > B : ; N G 8 ; 8 , = > = 0 @ > 4 8 A ? @ 0 2 = > ? > 4 E > 4 8 ; ,  
= 0 6 8 < 0 ; 8 > 6 8 4 0 ; 2 : ; N G 5 = 8 O 7 5 ; 5 = > 3 > . " > , G B > : = > ? > G : 0 = 5  
@ 0 1 > B 0 ; 0 8 6 4 0 ; 8 > = 8 G C B L 4 > ; L H 5 , 4 > 5 A B 5 A B 2 5 = = > 3 >  
> : > = G 0 = 8 O B @ 0 = A ? > @ B = > 9 D 0 7 K , = 8 : B > 8 = 5 4 > 3 0 4 0 ; A O ...

B 0 : , : 0 : 6 5 C 7 = 0 B L , = 0 A B @ > 5 = ; 8 B 5 @ < > 4 0 B G 8 : 2 2 0 H 5 <  
@ > A B 5 @ 5 ? @ C 1 > M B > < > 6 = > ? @ 5 4 5 ; 8 B L = 0 A ; C E , 8 = 0 M B > B  
M : A ? 5 @ 8 < 5 = B : > D 5 < > 6 = > = 5 ? 5 @ 5 2 > 4 8 B L . : ; N G 0 5 < @ > A B 5 @  
1 5 7 : > D 5 , 4 5 ; 0 5 < B 5 A B > 2 C N ? @ > 3 @ 0 < < C : 1 6 0 ° 4 ; 8 = > 9 3 < 8 = C B K 8  
7 0 ? C A : 0 5 < > 1 6 0 @ : C . A ; 8 @ > A B 5 @ = 0 A B @ > 5 = , G 5 @ 5 7 4 5 - 5 5 A > =  
2 K 9 4 5 B = 0 @ 5 6 8 < A B 0 1 8 ; 8 7 0 F 8 8 . M B > < @ 5 6 8 < 5 2 5 = B 8 ; O B > @  
? 5 @ 8 > 4 8 G 5 A : 8 ? > 2 K H 0 5 B 8 ? > = 8 6 0 5 B > 1 > @ > B K , = 0 A ; C E M B >  
2 > A ? @ 8 = 8 < 0 5 B A O : 0 : E 0 @ 0 : B 5 @ = K 5 ? > 4 2 K 2 0 = 8 O ( ? @ > A ; C H 0 B L : 9  
. wav) . 0 6 0 2 = 0 : = > ? : C " P , 2 8 4 8 < = 0 4 8 A ? ; 5 5 B 5 : C I C N  
B 5 < ? 5 @ 0 B C @ C : 2 0 2 ° . K A ? @ > A 8 B 5 , 0 ? > G 5 < C = 5 1 6 0 , : 0 : 2 K A B 0 2 ; 5 = > 2

? @ > 3 @ 0 < < 5? B 2 5 G C B 0 :: M B > 4 @ C 3 > 9 3 ; N : 4 0 == > 3 > @ > A B 5 @ 0 ,  
@ 5 G L > = 5 < ? > 9 4 5 B = 8 6 5 . ; O = 0 G 0 ; 0 3 ; 0 2 == > 5 4 > 1 8 B L A O  
2 K E > 4 0 = 0 @ 5 6 8 < A B 0 1 8 ; 8 7 0 F 8 8 . A ; 8 7 0 3 < 8 = C B K ? > 4 2 K 2 0 = 8 O = 5  
? > O 2 8 ; 8 A L , B 5 @ < > 4 0 B G 8 : 0 1 A > ; N B = > = 5 > B : 0 ; 8 1 @ > 2 0 = ,  
? @ 8 A B C ? 0 5 < : = 0 A B @ > 9 : 5 . ! : > @ 5 5 2 A 5 3 > , 2 M B > < A ; C G 0 5 = 0  
4 8 A ? ; 5 5 ? @ 8 : > = B @ > ; 5 B 5 < ? 5 @ 0 B C @ K 2 K C 2 8 4 8 B 5 G B > - B > 2  
4 8 0 ? 0 7 > = 5 1 5 0 - 1 8 0 ° , 8 C 6 B > G = > < 5 = L H 5 2 0 2 ° .

5 @ 5 4 = 0 A B @ > 9 : > 9 = 5 7 0 1 K 2 0 5 < 2 K = C B L 2 8 ; : C 8 7 A 5 B 8 ! != 8 < 0 5 <  
> 1 6 0 @ > G = C N : 0 < 5 @ C 8 C 1 8 @ 0 5 < ? > 4 0 ; L H 5 , 4 0 1 K A ; C G 0 9 = > = 5  
@ 0 A : > ; > B 8 B L E @ C ? : C N A B 5 ; : O H : C . 5 @ 5 2 > @ 0 G 8 2 0 5 < @ > A B 5 @  
2 2 5 @ E 4 = > < . != O 2 2 A 5 3 > 3 8 4 8 > B A : 8 E 2 8 = B 0 ( H ; 8 F " 8 4 8 > B A : 8 9 "  
> B : @ C G 8 2 0 5 B A O U - > 1 @ 0 7 = > 9 > B 2 5 @ B : > 9 ) , ? > ; C G 0 5 < 4 > A B C ? :  
: @ 0 N ? @ > F 5 A A > @ = > 9 ? ; 0 B K 8 @ 5 7 8 A B > @ C ? > 4 A B @ > 9 : 8  
B 5 < ? 5 @ 0 B C @ K :

- B 8 < @ 5 7 8 A B > @ > < 8 = 0 A B @ 0 8 2 0 N B A > > B 2 5 B A B 2 8 5 8 7 < 5 @ 5 == > 9 8  
@ 5 0 ; L = > 9 B 5 < ? 5 @ 0 B C @ . = = 5 2 ? 0 O = 2 ? ; 0 B C , 0 C A B 0 = > 2 ; 5 = = 0  
@ 0 7 J 5 < 5 , : > B > @ K 9 ; 5 3 : > 2 K = C B L A ? > < > I L N ? 8 = F 5 B 0 . # < 5 = O  
8 7 = 0 G 0 ; L = > A > ? @ > B 8 2 ; 5 = 8 5 @ 5 7 8 A B > @ 0 A > A B 0 2 ; O ; > 2 : < , C  
1 > ; L H 8 = A B 2 0 > A B 0 ; L = K E = 5 A G 0 A B = K E 1 : < . 5 0 ; L = > ? @ 8  
= 0 A B @ > 9 : 5 A > ? @ > B 8 2 ; 5 = 8 5 < > 6 5 B A > A B 0 2 ; O B L > B 1 4 > 5 : < ,  
? > M B > < C 4 ; O = 0 G 0 ; 0 O @ 5 : > < 5 = 4 > 2 0 ; 1 K C A B 0 = > 2 8 B L = 0 5 3 >  
< 5 A B > ? @ 5 F 8 7 8 > == K 9 < == > 3 > > 1 > @ > B = K 9 ? > B 5 = F 8 > < 5 B @ :  
> B 5 G 5 A B 2 5 == K 9 ! 5 - 2 8 ; 8 8 < ? > @ B = K 9 , = 0 ? @ 8 < 5 @ , B 0 : > 9 :  
<http://www.chip-dip.ru/product0/303607624.aspx> . 5 A ; 8 C 6 ? > : C ? 0 5 < 4 > @ > 3 C I 8 9  
? > B 5 = F 8 > < 5 B @ 7 0 5 4 @ C 1 , = 5 6 0 ; 5 5 < 1 0 @ C 1 8 = 0 @ 0 7 J 5 < X H P - 3 , 2 > B  
B 0 : > 9 : <http://www.chip-dip.ru/product0/56753032.aspx> . : @ 0 9 = 8 < : > = B 0 : B 0 < M B > 3 >  
@ 0 7 J 5 < 0 ? > 4 ? 0 8 2 0 5 < A @ 5 4 = 8 9 8 > 4 8 = 8 7 : @ 0 9 = 8 E ( ; N 1 > 9 ) 2 K 2 > 4  
? > B 5 = F 8 > < 5 B @ 0 . != 0 G 0 ; 0 ? 0 O 5 < : > = B 0 : B K , 0 ? > B > < 2 A B 0 2 ; O 5 <  
8 E 2 ? ; 0 A B 8 : > 2 C N « @ C 1 0 H : C » @ 0 7 J 5 < 0 . > B D > B > B > 3 > , G B >  
? > ; C G 8 ; > A L C < 5 = O A > B 5 G 5 A B 2 5 == K < ? > B 5 = F 8 > < 5 B @ > < :

5 @ 5 4 C A B 0 = > 2 : > 9 @ 0 7 J 5 < 0 = 0 < 5 A B > @ 5 : > < 5 = 4 C 5 B A O  
2 K A B 0 2 8 B L ? > B 5 = F 8 > < 5 B @ 2 A @ 5 4 = 5 5 ? > ; > 6 5 = 8 5 ( 5 A ; 8 5 A B L  
B 5 A B 5 @ ) . 0 ; L H 5 < > 6 = > ? > A B C ? 8 B L 4 2 > O : > , 2 7 0 2 8 A 8 < > A B 8 > B  
> 1 5 A ? 5 G 5 == > A B 8 8 7 < 5 @ 8 B 5 ; L = > 9 B 5 E = 8 : > 9 . A ; 8 5 A B L  
B 5 @ < > ? 0 @ 0 8 F 8 D @ > 2 > 9 B 5 @ < > < 5 B @ , < > 6 = > B > G = > = 0 A B @ > 8 B L  
B 5 @ < > 4 0 B G 8 . ; 5 A ; 8 = 5 B , < > 6 = > = 0 A B @ > 8 B L ? @ 8 1 ; 8 7 8 B 5 ; L = > ,  
? > 2 @ 5 < 5 = 8 2 K E > 4 0 = 0 @ 5 6 8 < A B 0 1 8 ; 8 7 0 F 8 8 .

A ; 8 C 2 0 A 5 A B L B 5 @ < > ? 0 @ 0 , 5 5 A ; 5 4 C 5 B ? @ > ? C A B 8 B L G 5 @ 5 7  
> B 2 5 @ A B 8 5 2 : @ K H : 5 @ > A B 5 @ 0 , 2 > B : 0 : 7 4 5 A L :

<http://www.iyume.com/coffee/iroast/Roast1-ScreenChaff.html> , ?>B>< ? @> ? C A B 8 B L 8 7 2 8 ; 8 A B > ?> 4

: @ K H : > 9 A 1 > @ = 8 : 0 H 5 ; C E 8 , 8 > ? C A B 8 B L ?> 4 4 => @ > A B 5 @ 0 , ?>

2> 7<> 6=> A B 8 1 ; 8 6 5 : B 5 @ <> 4 0 B G 8 : C , :> B > @ K 9 2 K 3 ; O 4 8 B

0 = 0 ; > 3 8 G => 2 > B B 0 : > < C :

<http://www.chip-dip.ru/product0/281738564.aspx> . > B D > B : 0 A

@ 0 A ?> ; > 6 5 = 8 5 < <> 5 9 B 5 @ <> ? 0 @ K :

C , 0 4 0 ; L H 5 2 A 5 ? @ > A B > . : ; N G 0 5 < @ > A B 5 @ ( <> 6 => ? C A B > 9 ) = 0

Preset2 , ? 5 @ 8 > 4 8 G 5 A : 8 = 0 6 8 < 0 5 < = 0 : => ? : C

" P 8 : @ C B O

?> B 5 = F 8 > < 5 B @ , 4 > 1 8 2 0 5 < A O 2 > 7 <> 6 => 1 > ; 5 5 B > G => 3 >

A >> B 2 5 B A B 2 8 O ?> : 0 7 0 = 8 9 4 8 A ? ; 5 O @ > A B 5 @ 0 8 M B 0 ; > == > 3 >

B 5 @ <> < 5 B @ 0 .

A ; 8 B 5 @ <> ? 0 @ K = 5 B , <> 6 => ? @ > A B > 2 : ; N G 8 B L @ > A B 5 @ = 0

= 0 3 @ 5 2 4 > 1 6 0 ° 4 ; 8 B 5 ; L => A B L N 3-5 < 8 = C B , ? @ 8 < 5 @ => G 5 @ 5 7 4 0 A

?> A ; 5 = 0 G 0 ; 0 = 0 3 @ 5 2 0 = 0 G 8 = 0 5 < : @ C B 8 B L ?> B 5 = F 8 > < 5 B @ ,

G B > 1 K ?> : 0 7 0 = 8 O 2 A B @ > 5 == > 3 > B 5 @ <> < 5 B @ 0 ? @ 8 1 ; 8 7 8 ; 8 A L :

202 ° . A ; 8 M B 0 B 5 < ? 5 @ 0 B C @ 0 C 6 5 4 > A B 8 3 = C B 0 @ 0 = L H 5 , G 5 < G 5 @ 5 7 4 0

A , : @ C B 8 < ?> B 5 = F 8 > < 5 B @ 2 A B > @ > = C C < 5 = L H 5 = 8 O ?> : 0 7 0 = 8 9

B 5 < ? 5 @ 0 B C @ K . > A B 8 3 = C 2 A B 0 1 8 ; 8 7 0 F 8 8 = 0 A ; C E , 2 K : ; N G 0 5 <

@ > A B 5 @ 8 > A B 0 2 ; O 5 < 5 3 > > E ; 0 6 4 0 B L A O G 0 A 0 = 0 2 . > B > <

2 : ; N G 0 5 < 2 => 2 L 8 = 0 B > 9 6 5 ? @ > 3 @ 0 < < 5 : > = B @ > ; 8 @ C 5 < 2 @ 5 < O

4 > A B 8 6 5 = 8 O B 5 < ? 5 @ 0 B C @ K 202 . 0 : O C 6 5 ? 8 A 0 ; @ 0 = L H 5 , M B > 2 @ 5 < O

4 > ; 6 => A > A B 0 2 ; O B L 4 5-5 5 A .

5 @ 5 E > 4 8 < : A ; 5 4 C N I 5 < C 3 ; N : C , > : > B > @ > < 2 A : > ; L 7 L

C ?> < O = C B > 2 K H 5 .

; N : 2 B > @ > 9

= 5 A >> B 2 5 B A B 2 8 5 2 K A B 0 2 ; O 5 <> 9

2 ? @ > 3 @ 0 < < 5 > 1 6 0 @ : 8 B 5 < ? 5 @ 0 B C @ K @ 5 0 ; L => 9 B 5 < ? 5 @ 0 B C @ 5

A B 0 1 8 ; 8 7 0 F 8 8 . > 7 <> 6 => , M B > B 3 ; N : E 0 @ 0 : B 5 @ 5 = 4 ; O

5 2 @ > ? 5 9 A : > 9 2 5 @ A 8 8 @ > A B 5 @ 0 , 3 4 5 B 5 < ? 5 @ 0 B C @ 0 8 7 < 5 @ O 5 B A O 2

3 @ 0 4 C A 0 E & 5 ; L A 8 O , 0 = 5 \$ 0 @ 5 = 3 5 9 B 0 , : 0 : C 0 < 5 @ 8 : 0 = F 5 2 , B . 5 .

4 > 1 ; 5 A B = K 5 ? @ > 3 @ 0 < < 8 A B K 4 > ? C A B 8 ; 8 3 4 5 - B > > H 8 1 : C 2 M B 8 E

A 0 < K E 3 @ 0 4 C A 0 E . - B > B 3 ; N : 8 7 A 5 @ 8 8 B 5 E , A : > B > @ K < 8 A B > 8 B

A < 8 @ 8 B L A O 8 C G 8 B K 2 0 B L ? @ 8 A > A B 0 2 ; 5 = 8 8 ? @ > D 8 ; 5 9 > 1 6 0 @ : 8 .

; O M B > 3 > 4 ; O = 0 G 0 ; 0 = 0 4 > A > A B 0 2 8 B L B 0 1 ; 8 F C A >> B 2 5 B A B 2 8 O

B 5 < ? 5 @ 0 B C @ ? @ > 3 @ 0 < < = K E C A B 0 2 > : @ 5 0 ; L = K < , 8 7 < 5 @ 5 == K <

B 5 < 6 5 A 0 < K < 2 = C B @ 5 == 8 < B 5 @ <> < 5 B @ > < , : > B > @ K 9 < K C 6 5

> B : 0 ; 8 1 @ > 2 0 ; 8 = 0 ? @ 5 4 K 4 C I 5 < M B 0 ? 5 . 5 ; 0 5 B A O M B > B 0 ::

1. 0 2 > 4 8 < B 5 A B > 2 C N ? @ > 3 @ 0 < < C A > A ; 5 4 C N I 8 <

B 5 < ? 5 @ 0 B C @ = K < ? @ > D 8 ; 5 < : 1 6 0 ° - 3 < 8 = , 1 7 0 ° - 1 < 8 = , 1 8 0 ° - 1 < 8 = , 1 9 0 ° - 2 < 8 = , 2 0 0 ° - 2 < 8 = .

2. : ; N G 0 5 < ? C A B > 9 @ > A B 5 @ 8 , > B ; 0 2 ; 8 2 0 O = 0 A ; C E <> < 5 = B K

A B 0 1 8 ; 8 7 0 F 8 8 , D 8 : A 8 @ C 5 < @ 5 0 ; L => 4 > A B 8 3 = C B C N B 5 < ? 5 @ 0 B C @ C

A B 0 1 8 ; 8 7 0 F 8 8 .

3. > A ; 5 > E ; 0 6 4 5 = 8 O @ > A B 5 @ 0 2 2 > 4 8 < => 2 C N ? @ > 3 @ 0 < < C :

2 1 0 ° - 3 < 8 = , 2 2 0 ° - 3 < 8 = , 2 3 0 ° - 3 < 8 = . > 2 K H 0 B L B 5 < ? 5 @ 0 B C @ C 2 K H 5 2 3 0 ° = 0

? C A B > < @ > A B 5 @ 5 A < K A ; 0 = 5 8 < 5 5 B , ? @ 8 > B A C B A B 2 8 8  
A > ? @ > B 8 2 ; 5 = 8 O ? > B > : C 2 > 7 4 C E 0 B 5 ? ; > ; 5 3 : > 2 K 4 C 2 0 5 B A O , 8  
@ > A B 5 @ ? @ > A B > 2 K H 5 ? @ > 3 @ 5 B L A O = 5 A < > 6 5 B .  
4. > 2 B > @ O 5 < ? 2 A = > 2 0 = 0 ? C A B > < @ > A B 5 @ 5 .  
5. @ 8 6 5 ; 0 = 8 8 ? @ > : > = B @ > ; 8 @ > 2 0 B L 1 > ; 5 5 2 K A > : 8 5  
B 5 < ? 5 @ 0 B C @ K ( 4 > 2 5 0 ) M : A ? 5 @ 8 < 5 = B = 0 4 > ? @ > 2 > 4 8 B L C 6 5 = 0  
@ 5 0 ; L = K E 7 5 @ = 0 E .  
6. 5 7 C ; L B 0 B K 8 7 < 5 @ 5 = 8 9 > D > @ < ; O 5 < 2 2 8 4 5 B 0 1 ; 8 F K ( O  
7 0 2 5 ; A ? 5 F 8 0 ; L = K 9 D 0 9 ; 2 Excel , 2 > B G B > C < 5 = O ? > ; C G 8 ; > A L :  
  
» @ 8 < 5 G 0 = 8 5 1 . 5 @ 2 > = 0 G 0 ; L = 0 O B 5 < ? 5 @ 0 B C @ 0 A B 0 1 8 ; 8 7 0 F 8 8  
4 ; O C A B 0 = > 2 ; 5 = > 9 1 6 0 ° A > A B 0 2 ; O 5 B 2 0 2 ° , = > ? > G 5 < C - B > G 5 @ 5 7  
= 5 : > B > @ > 5 2 @ 5 < O @ > A B 5 @ « A @ K 2 0 5 B A O » . 0 2 5 @ = > 5 , M B > B > 6 5  
3 ; N ; , 8 5 3 > B > 6 5 A ; 5 4 C 5 B C G 8 B K 2 0 B L . @ 8 < 5 G 0 = 8 5 2 .  
0 2 8 A 8 < > A B L : 0 : 0 O - B > = 5 > G 5 = L ; 8 = 5 9 = 0 O . 0 2 5 @ = > 5 , M B >  
B > 6 5 3 ; N ; , 8 5 3 > B > 6 5 A ; 5 4 C 5 B C G 8 B K 2 0 B L . N 1 K 5 7 0 < 5 G 0 = 8 O 8  
? @ 0 2 : 8 : 4 0 = > 9 B 0 1 ; 8 F 5 ? @ 8 = 8 < 0 N B A O . @ 8 < 5 G 0 = 8 5 3 .  
#: 0 7 0 = > K 5 2 B 0 1 ; 8 F 5 7 = 0 G 5 = 8 O ? > ; C G 5 = K ? @ 8 = 0 3 @ 5 2 5  
@ > A B 5 @ 0 . A ; 8 A 4 5 ; 0 B L B 5 < ? 5 @ 0 B C @ = K 9 ? @ > D 8 ; L A > A ? 0 4 0 N I 5 9  
B 5 < ? 5 @ 0 B C @ > 9 , 7 = 0 G 5 = 8 O B 5 < ? 5 @ 0 B C @ B 0 : 6 5 < > 3 C B  
> B ; 8 G 0 B L A O . > ; 5 5 B > 3 > , 2 A ; 5 4 A B 2 8 5 5 A B 5 A B 2 5 = > 9 B 5 ? ; > 2 > 9  
8 = 5 @ F 8 > = > A B 8 ( 8 = 0 2 5 @ = > 5 , 2 A ; 5 4 A B 2 8 5 > A > 1 5 = > A B 5 9  
0 ? ? 0 @ 0 B C @ K 8 A > D B 0 ) 3 ; C 1 > : 8 5 ? @ > 2 0 ; K 2 ? @ > D 8 ; 5 B 0 : 6 5  
= 5 4 > A B 8 6 8 < K : @ > A B 5 @ ? @ > A B > = 5 < > 6 5 B A 8 ; L = > > E ; 0 4 8 B L A O  
7 0 @ 0 7 C < = > 5 2 @ 5 < O ? @ 8 2 ; ; N G 5 = > 9 A ? 8 @ 0 ; 8 .  
I 5 @ 0 7 ? > 2 B > @ N A L , B 0 1 ; 8 F C A > > B 2 5 B A B 2 8 O 4 ; O A 5 1 O O 7 0 3 = 0 ; 2  
B 0 1 ; 8 G = K 9 D 0 9 ; , 8 B 0 < 6 5 E @ 0 = N 6 C @ = 0 ; > 1 6 0 @ : 8 , 2 : > B > @ > <  
7 0 ? 8 A K 2 0 N A 2 > 8 7 0 < 5 G 0 = 8 O 8 < K A ; 8 ? > ? > 2 > 4 C 8 7 < 5 = 5 = 8 O  
B 5 < ? 5 @ 0 B C @ = K E ? @ > D 8 ; 5 9 . 4 5 A L < K ? > 4 > 1 @ 0 ; 8 A L :  
B @ 5 B L 5 < C 3 ; N : C 4 0 = > 3 > @ > A B 5 @ 0 , B 0 : 6 5 A 2 O 7 0 = > < C A  
> A > 1 5 = > A B O < 8 ? @ > 3 @ 0 < = > 3 > > 1 5 A ? 5 G 5 = 8 O . 5 ; > 2 B > < ,  
G B > @ 0 7 @ 0 1 > B G 8 : 8 A > D B 0 = 5 ? > 7 0 1 > B 8 ; 8 A L > D C = : F 8 O E  
? @ > A < > B @ 0 8 @ 5 4 0 : B 8 @ > 2 0 = 8 O B 5 < ? 5 @ 0 B C @ = K E ? @ > D 8 ; 5 9 . " . 5 .  
5 A ; 8 2 K 2 2 5 ; 8 ? @ > D 8 ; L 2 @ > A B 5 @ 8 7 0 1 K ; 8 , G B > 2 2 5 ; 8 ,  
? > ; = > A B L N 2 > A A B 0 = > 2 8 B L ? @ > D 8 ; L = 5 2 > 7 < > 6 = > . @ 8  
> 1 6 0 @ : 5 < > 6 = > 2 K G 8 A ; 8 B L 2 @ 5 < 5 = 0 A B 0 4 8 9 , 1 ; 0 3 > = 0 4 8 A ? ; 5 5  
> B > 1 @ 0 6 0 5 B A O = > < 5 @ A B 0 4 8 8 8 2 @ 5 < O > 1 6 0 @ : 8 ( ? @ 0 2 4 0 ,  
= 5 C 4 > 1 = > , 2 2 8 4 5 > A B 0 2 H 5 3 > A O 4 > : > = F 0 2 @ 5 < 5 = 8 ) , 8 ? @ 8  
= 5 1 > ; L H 8 E C A 8 ; 8 O E 4 ; 8 B 5 ; L = > A B 8 A B 0 4 8 9 < > 6 = >  
2 > A A B 0 = > 2 8 B L . # A B 0 = > 2 ; 5 = > C N B 5 < ? 5 @ 0 B C @ C < > 6 = >  
2 > A A B 0 = > 2 8 B L : > A 2 5 = > ? > @ 5 7 C ; L B 0 B 0 < 8 7 < 5 @ 5 = 8 9 = 0  
> A = > 2 0 = 8 8 2 K H 5 ? @ 8 2 5 4 5 = > 9 B 0 1 ; 8 F K , = > 2 2 8 4 C E 0 > B 8 G = > 3 >  
E 0 @ 0 : B 5 @ 0 7 0 2 8 A 8 < > A B 8 8 2 ; 8 O = 8 O 4 > ? > ; = 8 B 5 ; L = K E D 0 : B > @ > 2  
( = 0 ? @ 8 < 5 @ , ? @ 8 S - > 1 @ 0 7 = K E ? @ > D 8 ; O E A > A ? 0 4 > < B 5 < ? 5 @ 0 B C @ K )  
B > G = > A 4 5 ; 0 B L M B > = 5 2 > 7 < > 6 = > . > B > < C E @ 0 = 8 B L  
B 5 < ? 5 @ 0 B C @ = K 5 ? @ > D 8 ; 8 , ? > ; C G 5 = > K 5 7 0 G 0 B C N ? C B 5 < 4 > ; 3 8 E

M : A ? 5 @ 8 < 5 = B > 2 , @ 5 : > < 5 = 4 C 5 B A O 7 0 ? 8 A 0 == K < 8 = 0 1 C < 0 3 5 8 ; 8 2  
B > < 6 5 D 0 9 ; 5 , 8 B 0 : 8 < > 1 @ 0 7 > < 1 > @ > B L A O A B @ 5 B L 8 < 3 ; N : > <  
4 0 == > 3 > @ > A B 5 @ 0 .

C , 8 = 0 : > = 5 F , 3 ; N : G 5 B 2 5 @ B K 9 , E 0 @ 0 : B 5 @ = K 9 2 > 1 I 5 < - B > 4 ; O  
2 A 5 E 4 > < 0 H = 8 E 8 < = > 3 8 E ? @ > < K H ; 5 == K E @ > A B 5 @ > 2 . - B >  
7 0 ? 0 E . 4 5 A L = 0 4 > > B 4 0 B L 4 > ; 6 = > 5 ? @ > 8 7 2 > 4 8 B 5 ; O <  
? @ 8 ; > 6 8 ; 8 > ? @ 5 4 5 ; 5 == K 5 C A 8 ; 8 O 4 ; O = 5 9 B @ 0 ; 8 7 0 F 8 8 M B > 3 >  
3 ; N : 0 , ? > ; > 6 8 2 2 : > < ? ; 5 : B ? 5 @ 5 E > 4 = 8 : = 0 1 0 0 - < <  
2 5 = B 8 ; O F 8 > == C N B @ C 1 C . > B > < C 7 4 5 A L ? @ > A B > ? > 4 5 ; N A L  
A 2 > 8 < > ? K B > < ? > : > = A B @ C : F 8 8 7 0 ? 0 E > > B 2 > 4 0 . > B 5 3 > > 1 I 8 9  
2 8 4 :

iRoast: > = 8

0 ? 0 E > > B 2 > 4 A > A B > 8 B 8 7 3 > D @ 8 @ > 2 0 == > 9 B @ C 1 K 8 7  
0 ; N < 8 = 8 5 2 > 9 D > ; L 3 8 8 ? ; 0 A B 8 : > 2 > 3 > D ; 0 = F 0 , : > B > @ K 9  
2 A B 0 2 ; O 5 B A O 2 > B 2 5 @ A B 8 5 2 5 = B @ 5 H 5 B : 8 8 7 0 : @ 5 ? ; O 5 B A O B 0 <  
G 5 B K @ L < O A 0 < > @ 5 7 0 < 8 . A 5 : C ? ; 5 = > 2 < 0 3 0 7 8 = 5 , B > @ 3 C N I 5 <  
2 5 = B 8 ; O F 8 > == > 9 B 5 E = 8 : > 9 . > D @ > B @ C 1 C = 0 4 > 1 @ 0 B L  
< 5 B 0 ; ; 8 G 5 A : C N ( 5 I 5 5 A B L ? ; 0 A B 8 : > 2 K 5 ) , B . : . B 5 < ? 5 @ 0 B C @ 0  
? @ > E > 4 O I 8 E ? > = 5 9 3 0 7 > 2 4 > 2 > ; L = > 2 K A > : 0 . 5 = B @ 5 H 5 B : C 8  
D ; 0 = 5 F : = 5 9 O 1 @ 0 ; : > < ? ; 5 : B > < > 4 = > 3 > ? @ > 8 7 2 > 4 8 B 5 ; O  
( - : > 2 5 = B ) , B . : . : > = A B @ C : F 8 O C < 5 = O 2 @ 5 < 5 = 0 O 8  
C A B 0 = 0 2 ; 8 2 0 5 B A O B > ; L : > = 0 2 @ 5 < O > 1 6 0 @ : 8 . > = B 0 6  
= 5 B @ C 4 > 5 < > ; , 7 0 = 8 < 0 5 B 1 - 2 < 8 = C B K . > 3 4 0 = 5 6 0 @ N , = 0 < 5 A B >  
D ; 0 = F 0 2 A B 0 5 B 4 5 : > @ 0 B 8 2 = 0 O @ 5 H 5 B : 0 .  
0 B 5 @ 8 0 ; D ; 0 = F 0 8 @ 5 H 5 B : 8 ? ; 0 A B 8 : ABS . 7 2 A 5 E  
? @ > 4 0 2 0 2 H 8 E A O 2 < 0 3 0 7 8 = 5 @ 5 H 5 B > : M B > B ? ; 0 A B 8 : A 0 < K 9  
B 5 @ < > A B > 9 : 8 9 . " 5 < = 5 < 5 = 5 5 , ? @ 8 = 0 3 @ 5 2 5 8 > = @ 0 7 < O 3 G 0 5 B A O ,  
> B > < C D ; 0 = 5 F = 0 B @ C 1 5 O 7 0 D 8 : A 8 @ > 2 0 ; E > < C B > < 8  
4 > ? > ; = 8 B 5 ; L = > ? @ 8 2 O 7 0 ; A C @ > 2 K < 8 = 8 B : 0 < 8 .

8 B : 8 2 4 5 ; 2 4 > ? > ; = 8 B 5 ; L = > ? @ > A 2 5 @ ; 5 == K 5 2 > D ; 0 = F 5  
> B 2 5 @ A B 8 O . 5 @ 5 E > 4 = 8 : = 0 = 8 6 = 5 < : > = F 5 B @ C 1 K B 0 : 6 5  
7 0 : @ 5 ? 8 ; A B O 6 : > 9 8 = 8 B : 0 < 8 . A ; > 6 5 == > < A > A B > O = 8 8 2 A O  
: > = A B @ C : F 8 O ? > < 5 I 0 5 B A O 2 = 5 1 > ; L H > < E > ; I > 2 > < < 5 H > G : 5  
8 E @ 0 = 8 B A O 2 : C E > == > < H : 0 D G 8 : 5 .

B 0 ; , 2 A B 0 B L 5 O ? 5 @ 5 G 8 A ; 8 ; ; ; N G 5 2 K 5 8 7 7 0 < 5 G 5 == K E < = > N  
3 ; N : > 2 : > D 5 6 0 @ : 8 iRoast2 . 0 2 5 @ = > 5 , 8 E 5 I 5 1 > ; L H 5 . " 5 < = 5  
< 5 = 5 5 , O ? > - ? @ 5 6 = 5 < C A G 8 B 0 N 4 0 == C N < > 4 5 ; L A 0 < > 9  
? @ > 4 2 8 = C B > 9 8 7 4 > < 0 H = 8 E @ > A B 5 @ > 2 8 = 5 ? @ > < 5 = O N 5 5 = 8 = 0  
: 0 : C N 8 7 = K = 5 2 K ? C A : 0 N I 8 E A O . > < > 3 C @ 5 : > < 5 = 4 > 2 0 B L 5 5  
B 5 < ; N I 8 B 5 ; O < 4 > < 0 H = 5 9 > 1 6 0 @ : 8 : > D 5 , : > B > @ K 5 3 > B > 2 K  
? @ 8 ; > 6 8 B L > ? @ 5 4 5 ; 5 == K 5 C A 8 ; 8 O 4 ; O @ 5 0 ; 8 7 0 F 8 8  
7 0 ; > 6 5 == > 3 > 2 @ > A B 5 @ ? > B 5 = F 8 0 ; 0 .  
; 0 3 > 4 0 @ N T M N 7 0 F 5 == K 5 A A K ; : 8 8 A > 2 5 B K , 1 5 7 = 8 E O 1 K 4 > ; 3 >  
8 A : 0 ; A ? > A > 1 K 1 > @ L 1 K A ? 5 @ 2 K < , A 0 < K < 3 ; 0 2 = K < 3 ; N : > < .  
; 0 3 > 4 0 @ N E l i s a b e t 7 0 ? @ 5 4 > A B 0 2 ; 5 = K 9 4 ; O M : A ? 5 @ 8 < 5 = B > 2  
@ > A B 5 @ , 1 5 7 = 5 3 > < = 5 = 5 A G 5 < 1 K ; > 1 K A @ 0 2 = 8 2 0 B L A 2 > 9

0??0@0B(2>1I5<-B>1>;55-<5=55=0AB@>5==K9=0702>45),8

~~S,N.?5@2K9?@>AB>=51K;1K>1=0@C65=.~~

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B>;L:>A?8AL<5==>3>@07@5H5=8O@540:F88

:B82=0OAAK;;0=08AB>G=8:>1O70B5;L=0

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