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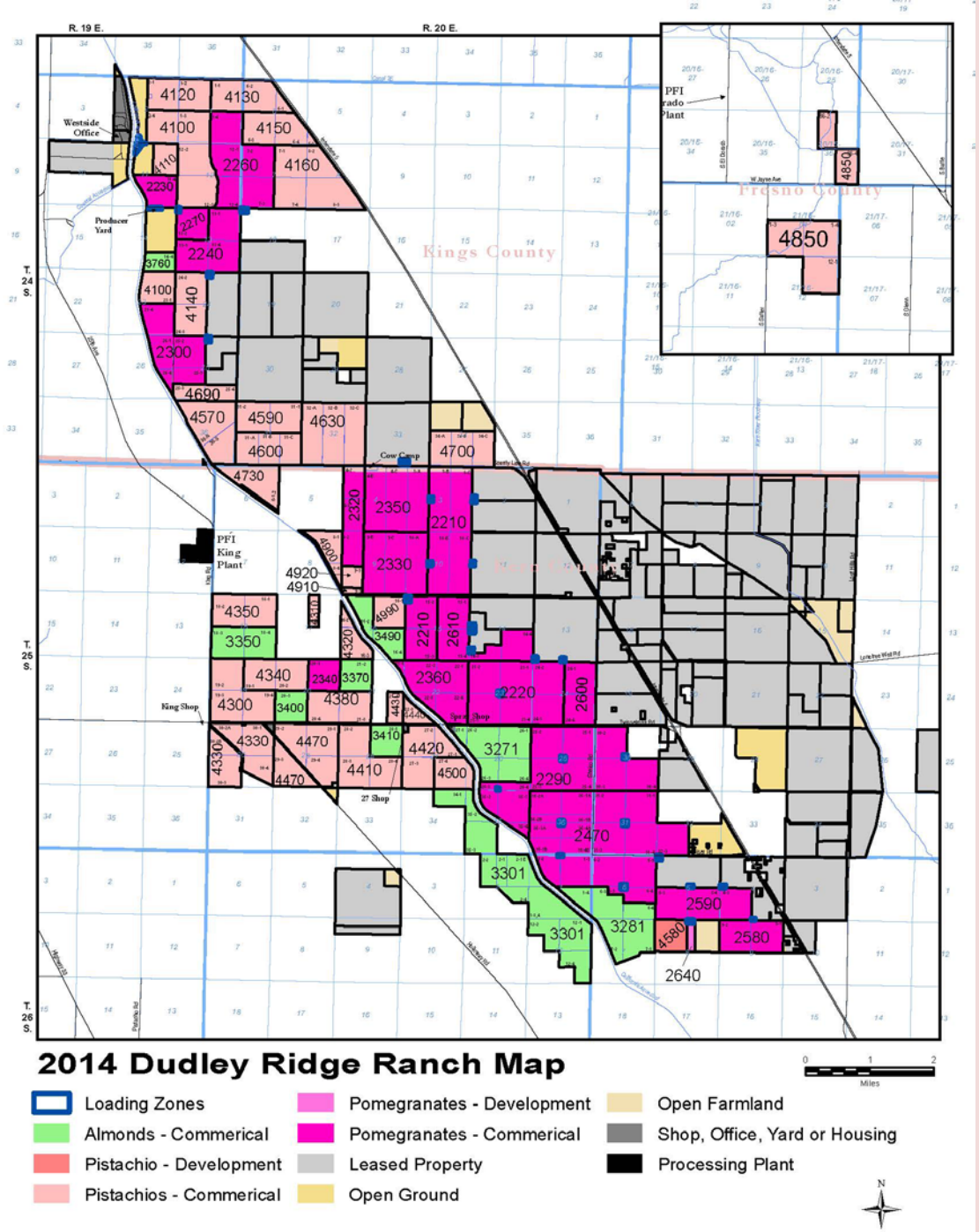
Bee Biologist
Paramount Farming Company

Project Apis m.

PARAMOUNT FARMING

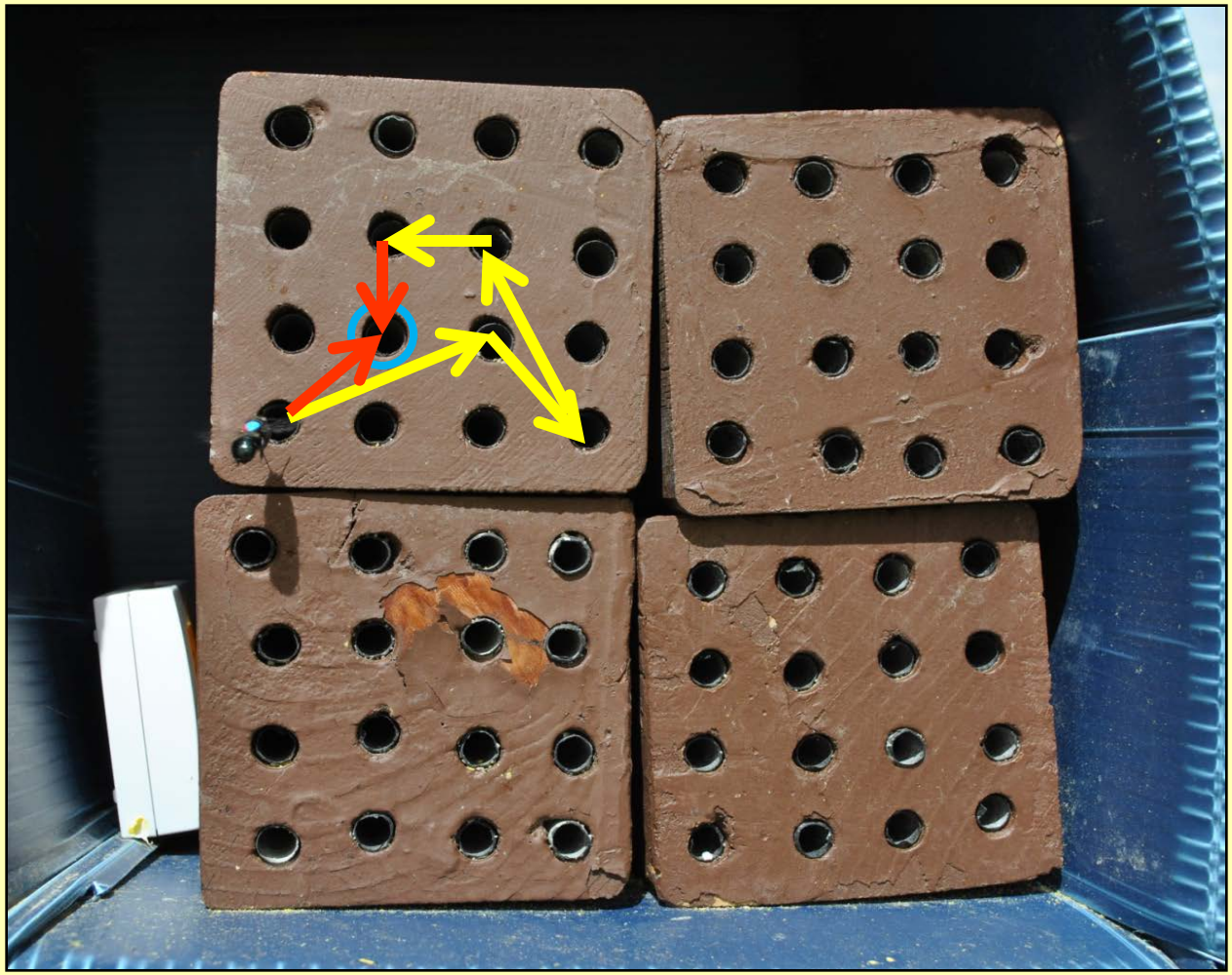
Osmia Developmental Stages

Egg	Larva	PrePupa	Pupa	Un-emerged Adult
1wk	3 wks	1-2 months	1 month	> 7 months


R. 19 E.
R. 20 E.
T. 24 S.
T. 25 S.
T. 26 S.
Westside Office
Producer Yard
PFI King Plant
King Shop
27 Shop
Cow Camp
Kings County
Fresno County
PFI rado Plant
4850
4120
4130
4100
4150
4110
2260
4160
2230
2270
2240
3760
4140
2300
4690
4570
4590
4630
4600
4700
4730
2320
2350
2210
2330
4920
4910
4350
3350
4990
3490
2610
4340
2340
3370
2360
2220
2600
4300
3400
4380
3410
4420
3271
4330
4470
4410
4500
2290
4470
2470
3301
2590
3281
4580
2580
2640
2014 Dudley Ridge Ranch Map
0 1 2
Miles
Loading Zones
Almonds - Commerical
Pistachio - Development
Pistachios - Commerical
Pomegranates - Development
Pomegranates - Commerical
Leased Property
Open Ground
Open Farmland
Shop, Office, Yard or Housing
Processing Plant
N
K:\GIS\Public_PFC_Data\Digital Maps\WS_Ranch_8.mxd 1/17/2014 8:41:06 AM

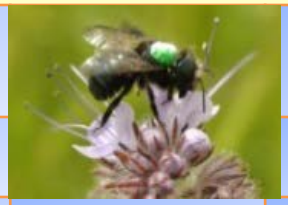
NEST RECOGNITION: BOBs & ALCBs

In addition to use of visual cues, BOB and ALCB females apply close-range olfactory cues to nests for nest recognition.



Fungicides have been demonstrated to interrupt these olfactory cues

NEST RECOGNITION: BOBs

Week 1 (Pre-spray)			Week 2 (1st Spray)		Week 3 (2nd Spray)	
Mean attempts ± SE			Mean attempts ± SE		Mean attempts ± SE	
Own nest hole	Other holes	Spray	Own nest hole	Other holes	Own nest hole	Other holes
0^{a}	*1.67 ± 0.33^{b}*	**Water**	0^{a}	1.06 ± 0.12^{a}	2.05 ± 0.54^{a}	2.96 ± 0.80^{a}
0^{a}	0^{a}	**Surfactant**	*1.20 ± 0.20^{b}*	1.31 ± 0.25^{a}	2.33 ± 0.64^{a}	2.77 ± 0.71^{a}
1.50 ± 0.35^{b}	*2.33 ± 0.45^{c}*	**Rovral, Rovral**	*2.63 ± 0.79^{c}*	*3.52 ± 0.85^{b}*	*3.67 ± 0.72^{b}*	*4.63 ± 0.85^{b}*
0^{a}	0^{a}	**Pristine, Pristine**	*2.41 ± 0.62^{c}*	*5.13 ± 0.84^{c}*	2.18 ± 0.49^{a}	*4.81 ± 0.96^{b}*
0^{a}	*1.75 ± 0.26^{b}*	**Rovral, Pristine**	*1.94 ± 0.56^{c}*	*4.07 ± 0.77^{b}*	*2.93 ± 0.57^{c}*	*4.71 ± 1.03^{b}*
1.67 ± 0.48^{b}	*1.50 ± 0.28^{b}*	**Pristine, Rovral**	*3.71 ± 0.98^{d}*	*4.23 ± 0.75^{b}*	*2.98 ± 0.67^{c}*	*4.46 ± 0.90^{b}*

Means within a column with different letters are significantly different ($P < 0.05$)
Kruskal-Wallis tests followed by Bonferroni-corrected Mann-Whitney tests.

Artz et.al 2013