Appendix C: Internal Validity Checks

To show no effect of SWD detection on mother socio-demographic characteristics, we

estimated variants of the following multiple treatment DID model,

$$Mother_{ct} = \beta_0 + \beta_1 SWD_{ct} + State \times Year_{st} + AgDistrict_d + \varepsilon_{ct} \qquad [C1]$$

where $Mother_{ct}$ is one of several mother socio-demographic characteristics (mother Hispanic,

mother black, mother is a high school dropout, mother smoked during pregnancy, mother's

education, and teen mother) in county c at year t, and all other variables were previously defined

in the main text. Table C1 shows the results of separate estimations of eq. (C1) for each

characteristic. Standard errors are reported in parentheses and have been two-way clustered by

county and year.

Table C1: Impact of SWD Detection on Mother Composition

	Hispanic	Black	HS Dropout	Smoke	Education	Teen Mother
After SWD detection	0.036	0.008	-0.007	-0.034	0.193	-0.016
	(0.044)	(0.007)	(0.008)	(0.032)	(0.190)	(0.015)
State-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Ag district fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Sample size	30,185	30,185	29,542	26,014	29,542	30,185

None of the maternal characteristics show any significant changes after initial SWD

detection. This suggests that the estimated infant health effects of SWD are not due to changes in

the composition of mothers who live in SWD detected counties.

To show that pesticide use is not a significant predictor of mother socio-demographic characteristics, we estimated variants of eq. (C1), replacing SWD_{ct} with pesticide use (either insecticides or fungicides). All other covariates and fixed effects remain unchanged. Table C2 shows these results.

Table C2: Impact of Pesticide Use on Mother Composition

	Hispanic	Black	HS Dropout	Smoke	Education	Teen Mother
Panel A: Insecticides						
Log(insecticides)	0.008	0.014	0.004	-0.006	-0.009	-0.000
	(0.007)	(0.014)	(0.003)	(0.007)	(0.008)	(0.000)
State-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Ag district fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Sample size	29,705	29,705	29,076	25,617	29,076	29,705
Panel B: Fungicides						
Log(fungicides)	0.000	0.010	0.001	-0.004	0.012	-0.002
	(0.001)	(0.009)	(0.001)	(0.004)	(0.010)	(0.002)
State-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Ag district fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Sample size	29,340	29,340	28,715	25,335	28,715	29,340

There is no evidence of changing mother composition due to pesticide use changes. Hence, changes in material characteristics caused by changing insecticide and fungicide usage are not driving the estimated infant health effects we observe.

Weather is another potential threat to internal validity if there were systematic changes in weather patterns concurrent with SWD detection. Our earlier finding of increased pesticide use after SWD detection could be reasonably driven by weather and not SWD. To show no effect of SWD detection on weather outcomes, we estimated a variant of equation (C1),

$$Weather_{ct} = \beta_0 + \beta_1 SWD_{ct} + State \times Year_{st} + AgDistrict_d + \varepsilon_{ct} \qquad [C2]$$

where $Weather_{ct}$ is either maximum temperature, minimum temperature, or precipitation (rain

and snow) in county c at year t, and all other variables are as previously defined. Results of

separately estimating eq. (C2) for each of the three weather outcomes are provided in Table C3.

No significant change in these outcomes is observed after SWD detection.

Table C3: Impact of SWD Detection on Weather Outcomes

	Maximum Temperature (tenths °C)	Minimum Temperature (tenths °C)	Precipitation (tenths mm)
After SWD detection	0.001	0.002	-0.005
	(0.002)	(0.002)	(0.008)
State-year fixed effects	Yes	Yes	Yes
Ag district fixed effects	Yes	Yes	Yes
Sample size	22,701	22,701	22,744

	(1)	(2)	(3)
	Log(Insecticides)	Log(Fungicides)	Log(Herbicides)
After SWD detection	0.424***	0.355***	0.017
	(0.060)	(0.055)	(0.89)
Weather controls	Yes	Yes	Yes
Agricultural district fixed effects	Yes	Yes	Yes
State-year fixed effects	Yes	Yes	Yes
R-squared	0.509	0.560	0.704
Sample size	19,819	20,522	21,749

Notes: dependent variables have been normalized by county land area and have been log adjusted. Same explanatory variables included as in Table 2 of the main text. Only those 56 pesticides that prior literature has shown to affect female reproductive health are used as dependent variables. Two-way clustered county and year standard errors reported in parentheses.
***p<0.01; **p<0.05; *p<0.1.