

## MANAGEMENT OF THE FEDERAL PERMIT FOR FIELD TESTING TRANSGENIC GRAPEVINE ROOTSTOCKS IN CALIFORNIA

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**REPORTING PERIOD:** The results reported here are from work conducted between April 1, 2016 and June 30, 2018.

### ABSTRACT

The major objective of this project is the management of the APHIS-BRS federal permits that facilitates the multi-investigator testing of transgenic grapevine rootstock and scion varieties in California. A renewal application for the Solano/Riverside federal permit was filed with APHIS-BRS on October 10, 2015, approved on March 8, 2016 and extended until March 8, 2019. The Riverside County site was terminated following a final disposition protocol approved by APHIS-BRS on June 9, 2016; the site was monitored monthly for volunteers over a year. Riverside “Field Termination”, “Field Test” and “Field Volunteer Monitoring” mandatory reports were submitted to APHIS-BRS on December 8, 2016. APHIS-BRS final inspection for the Riverside terminated field was conducted on June 22, 2017, and the Riverside “Final Volunteer Monitoring Report” was submitted on September 18, 2017. The Solano 2016-17 “Annual” and “Volunteers Monitoring” mandatory reports for the Solano/Riverside permit were submitted to APHIS-BRS on April 8, 2017. Solano County site was terminated on June 7, 2017, APHIS-BRS inspection for the Solano terminated field was conducted on September 27, 2017. The Solano/Riverside permit’s final disposition protocol was modified, to allow the terminated Solano field to be planted with another grape crop immediately instead to wait until mandatory one-year volunteers monitoring period is over, and a permit amendment application was filed on May 16, 2017 and approved on August 4, 2017. Solano field’s APHIS-BRS inspection for the Solano site was conducted on May 17, 17. In addition, a “Field Test” report for the Solano/Riverside federal permit was submitted on June 6, 2017.

A new federal permit application for field release of transgenic rootstocks expressing single or dual constructs was submitted on February 22, 2016. The new Solano APHIS-BRS federal permit was approved with an end date of June 17, 2019. The Solano site was expanded to begin field-testing transgenic versions of the commercially relevant rootstocks 101-14 and 1103 for their ability to protect the sensitive scion variety Chardonnay from Pierce’s disease (PD). The first “Annual” and “Volunteers Monitoring” reports for the new Solano permit were submitted to APHIS-BRS on July 17, 2017. “Annual”, “Planting”, “Volunteer Monitoring”, “Field Test”, and “Field Termination” mandatory reports for each federal permit are submitted in a timely manner to comply with the APHIS-BRS requirements.

### LAYPERSON SUMMARY

An APHIS-BRS federal permit with an end date of March 31, 2016 to conduct field trials of transgenic grapevines at two locations in Solano and Riverside Counties was obtained and managed by PIPRA until 2012, then Professor Abhaya Dandekar has taken over as permit holder since January 2014. A permit renewal application filed on October 10, 2015, and approved on March 8, 2016, extending the federal permit until March 8, 2019. An amendment application for the current Solano/Riverside federal permit was filed with APHIS-BRS on May 16, 2017 since the permit final disposition protocol was modified to allow the use of the terminated field to be planted with another grape crop immediately instead to wait until the mandatory one-year volunteers monitoring period is over. A new APHIS-BRS federal permit application for field release of transgenic versions of the commercially

relevant rootstocks 101-14 and 1103 expressing single or dual constructs, which will be field tested for their ability to protect the sensitive variety Chardonnay from PD, was also submitted on February 22, 2016. On June 17, 2016 a new APHIS- BRS federal permit was approved, with an end date of June 17, 2019 for the Solano site. The permit for the Riverside site was terminated following the disposition protocol approved by APHIS-BRS and the site was monitored monthly for volunteers for one year. On June 7, 2017 the Solano County site was terminated. APHIS-BRS inspections for Riverside County and Solano County terminated sites were conducted on June 22 and September 27, 2017, respectively. The purpose of the inspections was to verify that the field trials were in compliance with the APHIS-BRS performance standards and permit conditions. The inspections included visiting the field trials and related facilities, and reviewing associated records for each field trial.

To maintain compliance with APHIS-BRS federal permit conditions we conducted timely reporting and monitoring inspections. Regulatory compliance was enforced by working closely with the participant investigators, the two field coordinators, and their crews. PD field trial activity information was updated quarterly using the PI's activity monitoring logs. Two individuals from the Dandekar lab were entrusted with the tasks of documentation, training, and inspection to ensure regulatory compliance with the permit conditions (USDA-APHIS-BRS 2012a, 2012b). This includes monitoring the expanded activity at the Solano site under the two federal permits, monitoring the terminated Riverside site for volunteers, and preparing "Annual", "Planting", "Volunteer Monitoring", "Field Test" and "Field Termination" mandatory reports for each permit, which were submitted in a timely manner to comply with the APHIS-BRS requirement.

## **INTRODUCTION**

The major objective of this project is management of the APHIS-BRS federal permits that facilitate the multi-investigator testing of transgenic grapevine rootstock and scion varieties in California. A renewal application was filed for the current APHIS-BRS permit, the permit renewal was approved with an end date of March 8, 2019. This permit was modified to allow the use of the terminated field to be planted with another grape crop immediately instead of waiting for the mandatory one-year volunteers monitoring period to pass. An amendment application filed with APHIS-BRS on May 16, 2017 and approved amended permit obtained on August 4, 2017. The permits were terminated for the Riverside County and Solano County sites following the final disposition protocol approved by APHIS-BRS on June 9, 2016 and June 7, 2017, respectively. A new federal permit application for field release of transgenic rootstocks expressing single or dual constructs was submitted on February 22, 2016. The new APHIS-BRS federal permit was approved with an end date of June 17, 2019. The Solano site will be expanded to begin field-testing transgenic versions of the commercially relevant rootstocks 101-14 and 1103 for their ability to protect the sensitive scion variety Chardonnay from PD.

## **OBJECTIVES**

The major goal of this proposal is the management of APHIS-BRS federal permits that facilitate the field- testing of transgenic grapevine rootstock and scion varieties in California.

### **Objective 1. Management of existing USDA-APHIS field permits, maintenance of regulatory oversight, and compliance with permit reporting requirements.**

**Activity 1.** Extend and amend the existing permit beyond its current March 2016, expiration date.

**Activity 2:** Maintain regulatory oversight and compliance at both field locations, including reporting requirements and regulatory compliance inspections.

## **RESULTS AND DISCUSSION**

**Activity 1. Extend and amend the existing permit beyond its current March 2016 expiration date.** The APHIS-BRS federal permits with end date of March 31, 2016 for both the Solano and Riverside County sites were transferred from Professor Alan Bennett to Professor Abhaya Dandekar in January 2014. A permit renewal application was filed with APHIS-BRS on October 10, 2015 and approved on March 8, 2016 that extended the federal permit until March 8, 2019. The final disposition protocol for the current Solano/Riverside APHIS-BRS federal permit was modified, to allow the use of the terminated Solano site to be planted with another grape crop immediately instead of wait until the mandatory one year volunteers monitoring period to expire, and a permit amendment application was filed on May 16, 2017. The Riverside site was terminated following the final disposition protocol approved by APHIS-BRS on June 9, 2016; the site was monitored monthly for volunteers over a year.

The Solano site was expanded to begin field-testing transgenic versions of the commercially relevant rootstocks 101-14 and 1103 for their ability to protect a sensitive variety like Chardonnay from PD. A new federal permit application for field release of transgenic rootstocks expressing single or dual constructs was submitted on February 22, 2016. The new Solano APHIS-BRS federal permit was approved on June 17, 2016 with an end date of June 17, 2019.

**Activity 2: Maintain regulatory oversight and compliance at both field locations, including reporting requirements and regulatory compliance inspections.**

Personnel from the Dandekar laboratory maintained active regulatory oversight of the field trial sites. The issues requiring regulatory oversight compliance are listed in the permit conditions. Timely reporting and inspections were conducted to maintain compliance with specific APHIS-BRS federal permit performance standards and conditions. Regulatory compliance was enforced by working closely with the participant investigators, the two field coordinators, and their crews. PD field trials activity information was updated quarterly using the PI's activity monitoring logs. Two individuals from the Dandekar laboratory carried out the tasks of documentation, training, and inspection to ensure regulatory compliance with the APHIS-BRS permit conditions (USDA- APHIS-BRS 2012a and 2012b). This includes monitoring the increased activity at the Solano site due to the two federal permits and monitoring the terminated Riverside site. "Field Annual", "Planting", "Volunteer Monitoring", "Field Test", and "Field Termination" mandatory reports for each federal permit were submitted in a timely manner to comply with the APHIS-BRS requirements.

Riverside County site "Field Termination", "Field Test" and "Field Volunteer Monitoring" reports were submitted to APHIS-BRS on December 8, 2016. The "Field Test" report provides methods of observation, resulting data, and analysis regarding all deleterious effects on plants, non-target organisms, or the environment observed during the trial lifetime. The "Field Termination" report provides the final status, methods of observation and resulting data for each location. The "Field Volunteer Monitoring" report contains the dates when the field site and perimeter zone were inspected for volunteers, the number of volunteers observed each month during one-year period. Solano/Riverside 2016-17 "Annual Report" and "Volunteer Monitoring Report" were submitted to APHIS-BRS on April 8, 2017. The "Annual Report" reflects the status and observation for each location during a one-year period. New Solano 2016-217 "Annual Report" and "Volunteer Monitoring Report" were also submitted to APHIS-BRS on July 19, 2017. Solano County site "Field Termination", "Field Test" and "Field Volunteer Monitoring" reports were submitted to APHIS-BRS on December 6, 2017.

APHIS-BRS inspections for Riverside County and Solano County sites were conducted on June 22, 2017 and September 27, 2017, respectively. The purpose of the inspections was to verify that the field trials were in compliance with APHIS-BRS performance standards and permit conditions. The inspections included visiting the field trials and related facilities (e.g., buildings for equipment, seed storage, processing, disposal, etc.) and reviewing associated records for each field trial.

**CONCLUSIONS**

An APHIS-BRS permit renewal application for the APHIS-BRS federal field permit for field trials in Solano and Riverside Counties was filed on October 10, 2015, approved on March 8, 2016, which extended the permit until March 8, 2019. An amendment application for the current Solano/Riverside federal permit was filed with APHIS-BRS on May 16, 2017 since the permit final disposition protocol was modified to allow the use of the terminated Solano site to be planted with another grape crop immediately instead of waiting for the mandatory one-year volunteers monitoring period to pass.

A new APHIS-BRS federal permit application for field-testing transgenic versions of the commercially relevant rootstocks 101-14 and 1103 for their ability to protect the sensitive variety Chardonnay from PD, was submitted on February 22, 2016. The new APHIS-BRS federal permit was approved on June 17, 2016, with an end date of June 17, 2019.

We successfully maintained regulatory oversight and conducted regulatory compliance inspections of both field sites to maintain compliance with APHIS-BRS federal permit conditions. We submitted annual, field termination, field final, and volunteer monitoring reports for each permit in a timely manner to comply with the APHIS-BRS requirements.

**REFERENCES CITED**

USDA-APHIS-BRS. 2012a. Permit User's Guide with Special Guidance for ePermits. V.5/30/2012. USDA-APHIS-BRS. 2012b. ePermits BRS Reports and Notices User Guide. V.1.5.

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