

United States – Mexico Joint Strategic Plan for Collaboration on Bovine Tuberculosis

2013–2018

John R. Clifford
Deputy Administrator, Veterinary Services
Animal and Plant Health Inspection Service

MVZ Joaquín Braulio Delgadillo Álvarez
Director General de Salud Animal
Servicio Nacional de Sanidad, Inocuidad y
Calidad Agroalimentaria

Introduction

Mexico and the United States are important partners in international trade. This is especially true for the movement of live cattle between the two countries. In the past 5 years (2007-2012), the United States has imported from Mexico an average of 1 million feeder cattle per year. In 2012, Mexico imported about 5,800 cattle from the United States.

The bovine tuberculosis (TB) status in each country is one of the most important sanitary issues on which the two countries regulate this international movement. Therefore, it is in the mutual interest of our two countries that we collaborate on our approaches to controlling this disease and assuring safe trade.¹ This strategic plan represents a framework for that collaboration.

History

The United States Bovine Tuberculosis Eradication Program was established in 1917. Through this program, the United States has successfully reduced the prevalence of TB from 5% to less than 0.001%. The program has been based on each State individually working to systematically reduce its prevalence until it is recognized as free. Currently, all States except California and Michigan are recognized as free. However, sporadic cases continue to occur.

The Mexican Bovine Tuberculosis Eradication Program is officially recognized by the Secretariat of Agriculture and Livestock since the 1970s, as a response to the progress made in this area by the United States. They demanded that the importation of Mexican cattle complied with the minimum requirements to validate their negativity in this disease; the aforementioned originated the publication of the corresponding regulation. Although its scope was in the whole country, it was focused mainly to comply with the requirements for the exports. The above mentioned showed poor progress in the control and eradication of the bovine tuberculosis, with the exception of those herds which were certified as Free Herds and that were located mostly in the Northern States and whose purpose was to facilitate cattle export.

In 1993, the Mexican Federal government created the National Commission for the Eradication of Bovine Tuberculosis and Brucellosis (CONETB, by its Spanish abbreviation). CONETB is in charge of regulating this campaign and designates the Coordinators and Supervisors in the States who contribute to the operations of the campaign and who observe the compliance of the regulations of the Emergency Norm (which was published in 1994 and which established control and eradication procedures). The activities developed made possible that the State of Sonora was recognized in 1994 as in Eradication Stage; later in 1997, Tamaulipas, Chihuahua and Coahuila obtain the same Status; in 1998, Nuevo Leon and Yucatan and in 2000 Quintana Roo.

¹ It is important to point out that Mexico requires a modification to the current negotiation structure, since national policies have changed and agreements must necessarily be taken at forums attended with other involved agencies, addressing the animal health subject with a state policy which has to be observant of the individual rights of the Mexican society, particularly with regards to property and free transit within national territory, as well as the right to health. SENASICA, through the General Directorate of Animal Health, will continue to establish discussions and negotiations with their counterparts with a strict technical and legal sense.

At present, the campaign strategies are based on working to reduce the prevalence of the disease in zones “A” and in States with international recognition or in eradication phase, according to the Mexican regulations. These zones or States are primarily populated by beef cattle. The remainder of the country recognizes zones populated by dairy cattle, beef cattle, or mixed cattle, and zones which still do not have the international or national recognition, called “B” zones. Zones “A” have a TB prevalence of <0.5% and are considered “under eradication.” Currently, this includes 83.35% of the country. Nonaccredited (“B”) zones located in dairy areas comprise 5% of the country. The remaining territory of the country (11.65%) includes nonrecognized zones which are populated by mixed and beef type of cattle. These zones have the potential to be recognized. These zones have a prevalence ranging from 0.1 to 14.2%.

Because of the high volume of animals exported from Mexico to the United States and the low prevalence of TB in the United States, both countries have operated under an “equivalence recognition” system for the regulation of this trade.

Framework

Both the United States and Mexico are at distinct crossroads in their national TB programs. Both countries recognize that their individual regulations are in need of modernization. Therefore, we are capitalizing on this opportunity for collaboration to improve the safe trade of cattle between our two nations.

The United States is in the process of revising its TB regulations based on the extremely low prevalence of this disease. The United States will replace its prevalence-based categorization of States with a system that categorizes States by their ability to respond effectively to cases of TB should they occur in that State. Consequently, the United States will no longer have in place an “equivalent” State status system against which to evaluate Mexican States. The new regulation will propose a mechanism for recognizing regions within Mexico (or any other country wishing to export cattle to the United States) in order to allow safe trade to occur. Once promulgated, this regulation will provide for a “notice-based” mechanism to quickly recognize new regions or changes in existing regions.

Consistent with these regulatory opportunities, as well as the recognition that Mexico and the United States need to continually collaborate to achieve a safe trade of cattle, we have developed this Strategic Plan. The plan identifies two primary goals, with subordinate objectives and strategies:

- Goal 1: Minimize the risk of TB-affected or exposed animals moving in domestic or international trade.
- Goal 2: Provide a collaborative framework to define and measure needed improvements in both the Mexican and U.S. TB programs to facilitate trade.

Goal 1: Minimize the risk of TB-affected or exposed animals moving in domestic or international trade

Objective A: Decrease TB prevalence.

Current Status: United States

The prevalence of TB infection in the United States is extremely low. However, sporadic cases continue to be detected. Fewer than 15 TB-affected cattle herds have been detected annually in the last decade, resulting in a herd-level prevalence of less than 0.002% for beef herds and less than 0.006% for dairy herds.

Strategies: United States

It is difficult to achieve further reductions in the already extremely low prevalence of TB in the United States without undertaking a costly, complete TB eradication effort. Therefore, the United States will work to decrease TB prevalence by focusing on nonregulatory best-management practices to reduce the transmission of TB from high-risk subpopulations to program species.

Strategy 1. Improve our understanding of risk factors for TB transmission from high-risk subpopulations.

1. The United States will conduct a study of TB cases in California dairies and survey dairy management practices in western States to identify potential risk factors associated with TB transmission. (To be completed by the end of 2013)
2. The United States will identify potential source and at-risk populations of cattle through a study of historical TB case data using a model of cattle movements in the United States. (To be completed by the end of 2014)

Strategy 2. Implement the mitigations that are identified through the studies on high-risk subpopulations. The increase of herds in high-risk subpopulations that adopt these mitigations will be used to measure achievement of this strategy.

Current Status: Mexico

Mexico recognizes the regions with a TB prevalence of <0.5% as being “in eradication phase.” These regions currently represent 83.35% of the country, and 66% of this is recognized by APHIS as TB low-prevalence zones that have the possibility of exporting castrated cattle to the United States. The national TB prevalence, based on data from these accredited zones, is 0.23%. A total of 98 new cases of tuberculosis have been identified in APHIS recognized regions (2012). Nonaccredited (“B”) regions comprise 16.74% of the country with a prevalence ranging from 0.1 to 14.2%.

Strategies: Mexico

Mexico has planned specific strategies to increase regions or States with recognition as under eradication, increase the surface of the country with export eligibility recognized by SENASICA and APHIS, and decrease the disease prevalence in the nonaccredited regions.

Strategy 1: Increase the area of Mexico under eradication from 83% to 95% by 2018.

1. In the recognized regions, improve the slaughter surveillance program, as well as the exhaustive investigations to trace back the cases in order to detect tuberculosis. (Annually: 2013–2018)
2. Conduct area testing in the regions recognized by SENASICA and APHIS in order to achieve a test of each herd at least every 5 years. (2013–2018)
3. Test and eliminate reactors, and, if possible, depopulate all the detected affected herds, through active and passive epidemiological surveillance schemes to maintain a prevalence of less than 0.5% in the recognized regions. (Annually 2014–2018).
4. The beef cattle herds in nonaccredited regions will be tested, giving priority to those which may represent a higher dissemination risk to recognized regions. (2013–2018)
5. Establish and evaluate the movement control factors, including movement requirements, in order to establish strategic points of verification and inspection. This includes verification activities in the facility of origin or destination instead of during transit with the purpose of protecting lower prevalence regions from regions of higher risk. (2013–2018)

Strategy 2: By 2018, decrease the disease prevalence in the dairy regions to an average of 5% in herds participating in the vaccination and herd management program.

1. Complete an ongoing TB vaccination pilot project using Bacillus Calmette–Guérin (BCG) vaccine, which is currently being implemented in dairy cattle in the State of Jalisco, Region Lagunera and Queretaro. (2017)
2. Establish an infected herd management scheme that includes testing and segregation of replacement heifers with the purpose of decreasing transmission of tuberculosis and intra-herd prevalence. (2013–2018)

Joint Strategies

Under the new TB/brucellosis rule (to be implemented in 2015), the United States will work with Mexico to review and recognize their proposed regions (regionalization). In order to facilitate the effective management of regions and to best utilize the limited review personnel available in both Federal agencies, these regions should be officially formed by one or more States with similar disease prevalence, animal management, and similar movement patterns. Working together, the United States and Mexico can use the establishment of these regions to facilitate and monitor progress in the reduction of TB prevalence in Mexico.

Strategy 1: Collaborate on the establishment of Mexican TB regions for export.

1. Jointly develop proposed regions of similar TB prevalence and animal management within the four recognition tiers defined in the draft APHIS TB/brucellosis rule (see Appendix 1). (December 2013.)
2. Review and approve the regions duly proposed by SENASICA with the purpose of making that their recognition coincides with publication of the APHIS final rule. (December 2014.)

Strategy 2: Collaborate on mitigations needed to maintain or improve the tier status of recognized regions.

1. Establish a risk-based protocol for jointly evaluating a region when regional conditions change, such as if animals imported from Mexico are found to be positive for TB. (To be completed by the end of 2014.)
2. Continue with the joint pre-certification program (2013–2018)
3. Jointly re-evaluate each region as eradication efforts in Mexico support an improvement in a region's status. (To be conducted annually beginning in 2015)

Objective B: Improve disease program activities (epidemiological investigations, affected herd management, movement controls)

Current Status: United States

Reducing the risk of disease transmission from high-risk animals and known TB-affected animals and herds is the essence of the U.S. national TB program. The U.S. program has matured since its inception in 1917 and consists of regulations and policies that describe the program requirements. Critically important requirements that are uniformly applied include rapidly identifying the herd of origin and restricting all animal movements, identifying and confirming infection in the herd of origin for adult cattle slaughter cases, ensuring that TB reactors and suspects are only moved in terminal channels, thorough investigation of source and exposed herds including whole herd tests, removing exposed animals, and the timely completion of investigations.

These requirements will be included in the proposed rule and program standards for TB and brucellosis, which we expect to be published in early 2014. These and other requirements have been successful in significantly reducing the prevalence of TB and limiting the spread of TB, as *Mycobacterium bovis* strains identified from affected herds have rarely been detected after the initial outbreak has been contained. For example, the U.S. program successfully identifies the herd of origin for 80% and confirms TB in the herd for 63% of TB cases in adult cattle identified through slaughter surveillance.

Strategies: United States

The United States will reduce the risk of disease transmission within and from TB-affected herds by the timely application of quarantines and movement controls and initiation of epidemiologic investigations.

Strategy 1. Conduct thorough epidemiological investigations and manage affected herds to eliminate infection and reduce the risk of disease transmission.

1. Identify the herd of origin for no less than 90% of TB cases in cattle older than 2 years of age identified through slaughter surveillance. (Annually; 2013–2018)
 - a. Confirm TB in the herd of origin for no less than 50% of cases. (Annually; 2013–2018)
2. Identify the herd of origin and restrict movement out of the herd within 15 days of identification of a suspect TB case. (Annually; 2014–2018)
3. Update the predictive epidemiology model for affected herds to include new diagnostic tests and evaluate its impact on duration of test-and-remove protocols. (2014)

Strategy 2. Implement mitigations that are effective in reducing TB transmission risks for high-risk subpopulations.

1. Implement TB testing for the interstate movement of rodeo, event, or exhibited cattle or bison. (Upon publication of the final TB/brucellosis rule)
2. Require TB testing, including whole-herd testing as appropriate, when sexually intact cattle mobilizations occur from higher risk areas such as recognized management areas or inconsistent States or regions. (Upon publication of the final TB/brucellosis rule)

Current Status: Mexico

Mexico is undergoing a training program to improve the epidemiological monitoring of the positive cases, as well as the continuous improvement of tracing processes to obtain information to locate the MPHO (most probable herd of origin), based on the national system for livestock identification.

Strategies: Mexico

Mexico will complete the following operation and procedures for conducting epidemiological investigations in a timely manner (identification system and methods of correlation of samples to animal identification, training of staff responsible for monitoring, diagnostic techniques, documentation of mobilization).

1. Investigate 100% of TB-positive cases found during the slaughter of cattle or field testing in each region or State. (Annually: 2014-2018)
2. Increase the success of epidemiological investigations in finding TB infection from 44% to 50%. Enhance epidemiological investigations, such as finding and testing herds that sold animals to and purchased animals from the affected herd. (Annually 2014-2018)

3. Quarantine all TB-infected herds. (Ongoing 2013–2018)
4. Seek funding to support herd depopulation as the first choice for infected herds. (Annually 2014–2018)
5. Continue SENASICA supervision of TB-affected herds. Ensure that 90% of TB-affected herds have a signed herd plan that describes herd management specifically the test-and-remove plan or depopulation of the herd, premises cleaning and disinfection, and repopulation conditions. (Ongoing 2013–2018)
6. Establish a protocol that allows the movement of high-risk cattle to terminal feedlots and provides a list of mitigations to avoid the spreading of the disease. (2014)
7. Establish the regional coordinator and regional epidemiologist position(s) for each region, based on a continuous training plan and the evaluation of the performance. (Annually 2013–2018).

Joint Strategies

1. Continue to support SAGARPA precertification reviews and to conduct joint reviews of Mexican regions. Discuss approaches to address problems identified in these reviews. (2013–2018)
2. Pursue joint training/discussion concerning United States TB predictive epidemiology model. (2014)

Objective C: Improve diagnostic testing

Current Status: United States

Ante-mortem tests approved for use in the TB Program consist primarily of tuberculin skin tests (i.e., caudal fold (CFT), single cervical (SCT), cervical (CT), and comparative cervical (CCT)). Additionally, the gamma interferon test is approved for use as a secondary test in cattle. A secondary test is a test that typically has a high diagnostic specificity used to verify the health status of the animal or herd with non-negative screening test results.

Recently, APHIS and SENASICA focused considerable resources to support the development and timely validation of bovine TB serologic tests. In 2006, the United States and Mexico established a serum bank to support research and validation of new technologies for TB testing. The serum bank provides well-characterized samples from both infected and uninfected cattle and white-tailed deer that are linked with skin test, histopathology, and TB culture results. In addition, APHIS and SAGARPA continues to collaborate with test manufacturers and the USDA's Agricultural Research Service to conduct research to develop and validate diagnostic methods and tests.

As a result of these efforts, APHIS approved the ChemBio Stat-Pak and Dual Path Platform (DPP) serological tests for use as official TB tests in elk, white-tailed deer, reindeer, red deer, and fallow deer. Additionally, APHIS has finalized the policy to approve the IDEXX antibody test for use during the removal phase of test-and-remove herd management plans for TB-affected cattle herds.

The National Veterinary Services Laboratories (NVSL) currently uses several different genotyping tests to determine strain relatedness. These tests include spoligotyping, variable number tandem repeat, and whole genome sequencing. The information from these tools is used in epidemiological investigations.

Strategies: United States

The United States will improve diagnostic testing by ensuring the quality of approved TB diagnostic tests and supporting the development, evaluation, approval and implementation of additional tests and/or methods as official.

Strategy 1. Develop, evaluate, approve and implement additional diagnostic tests and/or methods as official TB tests.

1. Collect and analyze data during the implementation phase for newly approved diagnostics tests and adjust policy and procedures related to its program use, as necessary. (2013–2018)
2. Conduct projects to evaluate diagnostics tests for licensure, program approval, and additional program uses. (2013–2016).
3. Implement whole genome sequencing for *M. bovis* isolates to enhance epidemiological investigations. (2013–2016)

Current Status: Mexico

Tests for use in the TB program are mainly composed of tuberculin tests (CFT, SCT, and CCT), histopathology and bacteriology. PCR and gamma interferon tests are not within the current regulations.

Strategies: Mexico

Mexico will conduct the following strategies to evaluate new tests or laboratory methods to incorporate in the TB program.

1. The CENASA will conclude the NVSL collaborative project on the strains characterization of *Mycobacterium bovis* in North America (2015)
2. In the draft named “Agreement to inform the regulations for Bovine Tuberculosis eradication and control Campaign in Mexico,” complementary diagnostic tests have been included. Among them is the gamma interferon test, as well as others based in molecular biology (PCR and spoligotyping) with the purpose to consider them as official tests. (2013–2014).
3. Continue the program for continuous improvement in recognized laboratories through inter-laboratories tests, assessment and procedures correction. (Annually: 2013–2018)

Joint Strategies

The United States and Mexico will collaboratively support strategies to improve diagnostic testing.

1. Ensure the quality of approved TB diagnostic tests and methods so that the two countries can recognize each other's laboratory results.
 - a. Harmonize the processes to approve laboratories, standardize testing protocols, administer proficiency tests, and conduct periodic quality assurance reviews of laboratories. (2013–2018)
 - b. Continue to collaborate to develop and implement genotyping methods and standardize genotyping methods and interpretation of results between the United States and Mexico. (2013)
 - c. Develop an online North American *M. bovis* genotype database. (2015)
2. Develop, evaluate, approve and implement additional diagnostic tests and/or methods as official TB tests.
 - a. Collaborate to collect data and jointly evaluate developmental diagnostic tests, when appropriate. (2014)

Objective D: Improve TB surveillance

Current Status: United States

Routine surveillance of cattle and bison in States or regions consists of slaughter inspection and tuberculin testing. In each State or region, the total number of adult cattle and bison tested and/or inspected at slaughter should be sufficient to detect a prevalence level of 0.05% or higher, among cattle and bison with 95% confidence. Surveillance may also include wildlife.

- *Slaughter surveillance.* The minimum standard for slaughter surveillance is 1 granuloma submitted per 2,000 adult cattle slaughtered in federally inspected establishments. This standard is applied to each individual slaughter establishment. During FY 2012, 10,452 tissue samples were submitted for TB surveillance from routine slaughter inspection, resulting in the detection of 3 TB affected herds. All 40 of the highest volume adult cattle slaughter establishments met or exceeded this submission standard in FY 2012. The 40 highest volume adult cattle federally inspected establishments slaughter approximately 95% of all adult cattle slaughtered in the United States. Voluntary TB surveillance also occurs at establishments that slaughter fed cattle (< 2 years of age).
- *Wildlife surveillance.* The United States conducts targeted wildlife surveillance in geographic areas surrounding TB-affected livestock herds when indicated by epidemiological investigations.
- *Tuberculin skin testing.* The United States implemented a standard for the CFT in 2005; veterinarians conducting 300 or more CFT tests a year are expected to have a minimum

response rate of 1%. Each State is responsible for monitoring the CFT test performance of its accredited veterinarians and contacting individuals that do not meet the minimum standard. Compliance rates are reported annually. During FY 2011, 4,427 veterinarians conducted over 950,000 CFT tests, with an overall response rate of 1.1%. Of those veterinarians, 601 conducted more than 300 tests, with 313 (52%) meeting or exceeding the minimum performance standard.

Strategies: United States

The United States will undertake two strategies to improve TB surveillance.

Strategy 1. Finalize the national TB surveillance plan to replace the current State-based system.

A national approach to surveillance should detect a TB prevalence level of 0.003% or higher among U.S. cattle and bison with 95% confidence; implement targeted surveillance in source and at-risk populations of livestock and wildlife at a level sufficient to detect infection; and enhance surveillance in captive cervids.

1. Develop and implement a revised program for Food Safety and Inspection Service (FSIS) inspectors for bovine TB slaughter surveillance. (2014)
2. Develop targeting criteria and implement targeted slaughter surveillance in United States at slaughter establishments for steers and heifers that process high risk cattle. (2013–2014)
3. Publish and implement the National TB Surveillance Plan. (At time of implementation of final TB/brucellosis rule)
4. Conduct a National Animal Health Monitoring System study of farmed and captive cervids in the United States to better understand management practices and animal health issues, including those related to bovine TB. (2014)
5. Evaluate plant selection strategies and feasibility of conducting a cervid slaughter surveillance pilot project. (2014)

Strategy 2. Raise the compliance with the CFT performance standard for accredited veterinarians from current compliance levels to 57% by 2015 and to 65% by 2018.

1. Monitor compliance of accredited veterinarians with existing CFT performance standards and have an action plan to follow-up with veterinarians that do not meet the standard (Annually: 2013–2018).
2. Establish a qualified accredited veterinarian (QAV) program for TB through additional outreach and education. Accredited veterinarians are authorized to conduct certain regulatory activities on behalf of APHIS. Qualified accredited veterinarians are individuals that complete additional, specialized training requirements and obtain TB program certification.
 - a. Determine if different performance standards and/or enforcement strategies are needed for accredited veterinarians that perform large number of tests. (2014)
 - b. Draft performance criteria and guidelines for a QAV program for bovine TB. (2014)

- c. Distribute draft performance criteria and guidelines for the QAV program to State and Federal animal health officials for review and comment. (2014) Implement the QAV program for TB (2015).

Current Status: Mexico

During 2012, 5,881,221, head of cattle were sacrificed in slaughterhouses with inspection in México. Of these, 5,616,380 (95.5%) were supervised, a granuloma submission rate of 2 per 2,000 sacrificed animals. There are 1,022 registered slaughterhouses with TB inspection. Of these 433 are located in recognized regions, 589 in nonaccredited regions. Of the 1022 slaughterhouses with inspection, 53 are official federally inspected facilities (TIF); 25 are located in regions with status and 28 in nonaccredited regions.

Strategies: Mexico

Mexico will complete the following strategies to increase the percentage of inspection of the slaughterhouses, improve the rate of samples sent, and strengthen inspection in TIF and municipal facilities with specialized personnel. In addition, Mexico will work to improve and maintain appropriate standards of tuberculin tests in order to achieve results according to the specificity of the test and will require that all veterinarians who perform tuberculin tests get training in test application as approval requirement.

1. Prioritize resources for evaluating and supervising the field work of accredited veterinarians (MVRA by its Spanish abbreviation) in the States or areas, focusing on veterinarians who conduct 2,000 or more tests a year. (Annually: 2013–2018)
2. Establish a continuous evaluation and training program for the MVRA to increase the current CFT response rate of 0.92 percent to reach 1% in 2018. (Annually: 2013–2018)
3. SENASICA will continue evaluating the performance of the MVRA regarding their compliance with the requirements to allow their participation in conducting export tests based in their CFT response percentage and reporting system. (2013–2018).
4. Establish a plan to evaluate the performance of the veterinarians with a high volume of tests, awarding incentives for the ones that meet the standards and penalizations or suspensions to the ones that do not. (2014).
5. Prioritize the supervision of high-volume slaughterhouses with TB inspection (2013).
6. Implement a harmonized inspection process at the Federal level for the municipal slaughterhouses, private sector slaughterhouses and TIF plants (2013).
7. Expand slaughter surveillance of bovine TB by converting municipal plants to TIF plants.
8. Continue to conduct supervision and training activities with the purpose that the inspection standards are adequate, maintaining at least 95% of the inspection in slaughtered cattle throughout the accredited regions. (Annually: 2013–2018).
9. Maintain the granuloma submission rate of 1 per 2,000 slaughtered animals which are older than 2 years, originating from recognized regions. Conduct the necessary procedures in order to include slaughterhouses that still do not have veterinary inspection and that can be important for the surveillance of the disease. (Annually 2013–2018)
10. Continue to improve compliance with the documentation requirements that identify the origin of the slaughtered cattle in Mexico. (Annually 2013–2018)

11. Develop a “Protocol for surveillance of bovine tuberculosis in white-tailed deer and other wild ungulates.” The protocol will include staff training related to the use and conservation of wildlife and establish a TB monitoring program in wildlife. (2013–2014)
12. Coordinate with northern Mexican Border States and respective Federal and State authorities who regulate wildlife to strengthen wildlife surveillance. (2013)
13. Conduct postmortem TB surveillance on U.S. imported cattle that die during the import process and quarantine period at final destination prior to introduction to the Mexican herd. (2013)

Joint Strategies

The United States and Mexico will collaboratively undertake the following strategies to improve TB surveillance:

1. Use adult cattle and targeted fed cattle slaughter surveillance conducted in the United States and Mexico to:
 - a. Determine the rate of TB-infected cattle imported from Mexico and the United States (2013)
 - b. Measure progress toward other goals in this strategic plan (2013-2018)
 - c. Initiate epidemiological investigations in Mexico and the United States when notified of these cases (2013–2014)
2. Develop a project to evaluate the minimum standards for caudal fold tuberculin skin test (CFT) response rate in cattle being traded between Mexico and the United States. (2014-2015)
3. Exchange information regarding the performance of veterinarians conducting CFT testing for exported cattle. (Annually: 2013–2018)
4. Continue to include requirements that SENASICA certify veterinarians to conduct export testing based on their CFT response rate. SENASICA will continue to provide lists of these accredited veterinarians. (2013–2018)
5. Identify alternatives for testing of cattle for export that minimize risk to the United States but are feasible given personnel resources in Mexico (i.e., a certification scheme to have accredited vets do the CCT test, approval of g-INF, others). (2013–2015)
6. Share details on the development and implementation of the QAV program in the United States. (2014–2016)

Objective E: Establish and maintain an effective traceability system

Current Status: United States

USDA published a final rule, “Traceability for Livestock Moving Interstate,” on January 11, 2013. The regulations outline procedures to improve the ability of animal health officials to trace livestock when disease is found. The rule establishes requirements for the official identification of livestock and documentation for certain interstate movements at title 9 of the *Code of Federal Regulations* (9 CFR), part 86. Covered livestock include cattle and bison; horses and other equine species; poultry; sheep and goats; swine; and captive cervids. Each species, unless otherwise exempt, must be officially identified and accompanied by an Interstate Certificate of Veterinary Inspection (ICVI) or other movement document. These identification and documentation requirements provide basic information essential for traceability.

The effectiveness of existing slaughter surveillance for TB in the United States hinges on our ability to identify the most likely herd-of-origin when cases are detected. Inadequate traceability systems may result in undetected TB-affected herds that can serve as an ongoing source of TB and impede our eradication efforts. In other cases, resources are expended unnecessarily when multiple herds that could have been the source for a case must be tested to rule out TB infection.

Strategies: United States

The United States will undertake two strategies to improve the effectiveness of our traceability system with regard to the TB Program.

Strategy 1. Improve the retention of official identification devices on animals.

1. Implement animal disease traceability (ADT) rule. (Effective March 11, 2013)
2. Conduct producer education/outreach, especially by State and Federal animal health officials at the local office level, reinforcing ADT requirements. (2013–2014)
3. Work with accredited veterinarians and provide ADT training module. (2013–2014)

Strategy 2. Enhance accurate collection of identification devices at slaughter.

1. Educate and conduct outreach to slaughter establishment personnel and FSIS to ensure that devices collected at slaughter are made available to APHIS and FSIS by the slaughter plant. (2013–2018)
2. Develop a memorandum of understanding with FSIS that outlines responsibilities of each agency to ensure accurate device collection. (2013–2018)
3. Develop written guidance for FSIS personnel to ensure adequate tissue is submitted with identification devices to fully implement animal identity (microsatellite) testing. (2013)
4. Revise and implement FSIS TB slaughter surveillance program to emphasize the requirement for submission of identification devices with lesions. (2014)
5. Validate use of satellite nucleotide polymorphism (SNP) technology to guide epidemiological investigations and herd testing when traceability information collected at slaughter is inadequate. (2013–2014)

Current Status: Mexico

Due to the zoosanitary prevention and control requirements in different livestock species, as well as the evolution in the development of international regulations about traceability in the products with the SAGARPA authority, in 2003 the National Confederation of Livestock Organizations began with the implementation of the National System of Individual Identification of Livestock (SINIIGA), through PROGAN (Programa de Producción Pecuaria Sustentable y Ordenamiento Ganadero y Apícola, in English “Sustainable and Management of Livestock Production and Beekeeping Program), which is a productive support program. In year 2005, the cattle identification system was initiated. The individual identification consists of assigning to each animal a unique number that will be used throughout its whole life and that will allow to trace its mobilizations. The physical component consists of two ear tags for each animal (one in each ear); one of them may have a microchip. Both ear tags will have the same alphanumeric code.

In 2010, 100 percent of TB-affected animals found at slaughter were traced to their herd of origin (HMPO) in 30 out of 38 accredited and nonaccredited regions in accredited States. However, only 3 of 38 regions were successful in identifying further infection.

During the period 2010 to 2012, 2,323 regular slaughtering samples were investigated at national level; out of them, 310 infected herds have been identified. In 2012, it was possible to locate the most probable herd of origin 98.48% of the cases and the infection was confirmed in 44.77% of the investigations.

Based on the aforementioned results, Mexico has chosen to establish a National System for the Individual Identification of Livestock to increase the efficiency in the development of the program through strengthening the traceability.

Strategies: Mexico

Strategy 1: Continue SINIIGA implementation with a focus on the exporting States.

1. Continue with the traceability project based on the SINIIGA system, implementing the Federal system for the certification of ownership and animal movements, and registering and retiring tags. (2013–2018)
2. Strengthen schemes for SINIIGA ID and database, such as software development for movement control and export documents. (2013)
3. Establish groups for follow up and continuous supervision of the SINIIGA system.(2014-2015)

Joint Strategies

The United States and Mexico will undertake three strategies to improve the effectiveness of our traceability systems and its role in the implementation of our respective TB programs.

1. Maintain communication regarding changes to official identification and associated technology, if changes occur. (2013–2018)
2. Develop electronic certification and permitting options, for both import and export. (2015)
3. Work toward recognition of the SIINIGA ear tag and database as a main form of official identification for exported cattle to the United States. (2015)

Goal 2: Provide a collaborative framework to define and measure needed improvements in both the Mexican and U.S. TB eradication programs to facilitate trade.

Objective A: Ensure transparency and open communications between Mexico and the United States (including process)

Current Status: United States

The United States has developed a single proposed rule that will encompass the bovine brucellosis and TB programs and includes provisions to improve transparency and communication. If finalized as proposed, States would need to submit TB case investigation reports, including periodic updates that would be shared with the State, industry and international stakeholders. Annual reports for each State would also be submitted and shared. Any changes to the program standards or status of a State would be published in the Federal Register with an opportunity for stakeholders to comment. The United States has already started to increase transparency concerning case detection by posting summary information about TB-affected herds on the VS Web site, allowing viewing by SAGARPA and other trading partners as of July 2012.

Strategies: United States

Strategy 1. Clarify the process for complying with the TB/brucellosis final rule.

1. Revise VS Memorandum 552.41 to be consistent with new regionalization and TB/brucellosis regulation. (2014)

Strategy 2. Develop or improve electronic platforms for information sharing.

1. Redesign Web page that provides import protocols. (2014)

Current Status: Mexico

There is an open and transparent exchange of information which allows the clear and timely communication between Federal and State authorities; and producers through the State Livestock Protection and Promotion Committees. This information exchange regarding bovine TB is also open between authorities in Mexico and the United States.

The desired outcome is to improve information channels and streamline information exchange processes to facilitate bilateral information exchange and analysis. This will result in the ability to conduct information exchange in a timely manner.

Strategies: Mexico

Strategy 1. Develop a single platform for TB-related of information. (2014)

1. Develop TB program software for online and real-time monitoring mechanism of TB program activities (automation of case reports). (2014)

Joint Strategies

1. Continue to hold bilateral Fed-Fed meetings no less than four times per year. (2013–2018)
2. Update the SOP for communication and follow-up when TB-cases are detected in Mexican-origin or U.S. cattle through slaughter surveillance in both countries. (2014)
3. Modify the semi-annual report format of the recognized regions to include an executive summary which contains all the criteria to be evaluated. (2013)
4. The United States and Mexico will share information as they evaluate third-country requests for TB status for the import of live cattle. (2013)
5. The United States and Mexico will continue to review and consider recommendations from previous APHIS or SENASICA reviews. (2013)

Objective B: Expedite regulatory changes through streamlined processes

Current Status: United States

It takes APHIS 2 to 4 years to make changes to the Code of Federal Regulations. The proscriptive nature of the current TB regulations requires even minor changes to be implemented through the formal rulemaking process. In revising the TB/brucellosis rules, APHIS is implementing performance-based regulations that will allow for more rapid changes to program standards using a notice-based approach. Consequently, import and export requirements, program standards and other policy documents will be kept up to date and shared with State, industry and international stakeholders in a more timely way.

Strategies: United States

Strategy 1. Implement a notice-based process for recognition of a country's animal health status.

- a. Regularly review program standards and revise as necessary. (Upon publication of the final TB/brucellosis rule)

Current Status: Mexico

Mexico is carrying out a transition process on the use of Mexican Official Norms to the publication of the official regulations through “Agreements,” which is a legal document that will allow to have a current zoosanitary regulation which can be reviewed and modified as necessary, considering the technological progress, as well as the economic, productive situation and the current zoosanitary progress.

Strategies: Mexico

Strategy 1. Update the regulations by publishing an agreement for the national campaign against the bovine tuberculosis. (2014)

Strategy 2. Publish an agreement to regulate participants in the national campaign including veterinarians, laboratories, State committees, and centers for health certifications. (2014).

Joint Strategies

The United States and Mexico will discuss changes in process and content of our respective regulations as they occur. (2013–2018)

Objective C: Harmonize regulatory definitions and actions, where possible.

Current Status: United States and Mexico

APHIS has long pursued harmonizing the U.S. domestic and international animal movement regulations, as well as definitions used in the regulations, while ensuring that these definitions address differences in risk.

The campaign in Mexico is governed by the NOM-031-ZOO-1995, National Campaign Against Bovine tuberculosis (*M. bovis*) norm which needs to be updated to adjust the technical and scientific progress, both in the diagnosis, as well as in the epidemiological follow up processes. For this reason, SENASICA has moved to a regulations scheme through “Agreements” and at present, the specific document is under process.

In addition to the current regulations, guidance documents such as VS Memorandums 552.41 and 552.38 have been developed to clarify our existing TB status system.

The existence of a Federal regulation that meets the needs of the national eradication program and of the international requirements will avoid excessive local health regulations, giving specific legal support for its compliance.

Joint Strategies:

The United States and Mexico will bilaterally determine the desired degree of harmonization to support trade.

1. Harmonize definitions and actions in discussions between United States and Mexico for elements of the TB Program that impact international trade. Examples of definitions and actions to discuss include: herd, lot, accredited herd, whole herd test, herd plan, complete epidemiologic investigation, movement restrictions, quarantined feedlot, accredited/approved/authorized veterinarian, suspect and reactor. Import protocols may also require revision and adoption. (Upon publication of the final TB/brucellosis rule and ongoing)
2. Coordinate reviews of the States and regions that allow the definition of a zoosanitary condition and its international recognition. The results of such reviews are recognized and accepted by SENASICA and APHIS. (2013–2018)

Objective D: Establish an effective training and supervisory component.

Current Status: United States

VS provides training to both accredited veterinarians and State and Federal regulatory veterinarians. Local offices provide hands-on training for accredited veterinarians through the National Veterinary Accreditation Program. VS offers basic skills and epidemiology training courses that include modules on the TB Program for State and Federal veterinarians. APHIS would like to maintain existing training for State and Federal veterinarians both in the interior as well as at the border ports while creating opportunities for more frequent training/communication with State and Federal veterinarians throughout the United States.

Strategies: United States

Strategy 1. Deliver training for newly approved TB diagnostic tests.

1. Conduct webinars for targeted audiences. (2013)
2. Incorporate into appropriate VS Training Courses. (2014)

Strategy 2. Implement quarterly TB Program webinars for State and Federal employees. (2014)

Strategy 3. Implement a website/SharePoint site to share program information with State and Federal employees. (2014–2015)

Strategy 4. Develop initial training modules for TB QAV program, including topics on import and export. (2014)

Strategy 5. Develop training modules for recertification for TB QAV Program. (2015)

Strategy 6. Conduct additional training as needed as the TB/brucellosis rule is implemented. (2015)

Current Status: Mexico

Mexico has implemented a training program for the personnel involved in the campaign through “Regional Workshops for the training of Epidemiological Monitoring of the National Campaign Against Bovine Tuberculosis,” as well as workshops and courses for the authorized responsible veterinarians (MVRA) who perform CFT.

The actions and results of the work from the campaign such as the indicators, are published in the SENASICA Web page (www.senasica.gob.mx under the Animal Health General Directorate and micro site of the Zoosanitary Campaigns Directorate).

Strategies: Mexico

Strategy 1. Transition to a veterinarians’ accreditation program to require practical and theoretical training and testing for the purpose of granting authorization for the campaign work. (2014)

Strategy 2. Implement a continuous training program for the private MVRA and the ones assigned to the State Committees, regarding the most relevant aspects of the national campaign. (2014)

Strategy 3. Continuous Evaluation System oriented to measure the impact of the training regarding the improvement in the development of the national campaign. (2014)

Strategy 4. Additional training as needed as the TB agreement is implemented. (Middle 2014)

Strategy 5. Provide training to official SENASICA personnel (State and regional coordinators, as well as the supervisors) mainly to the newly hired officials with the purpose of having a continuous professionalization program which provides highly qualified personnel (Annually: 2013–2018)

Joint Strategies

1. Include United States and Mexico border personnel in TB training activities, when appropriate. (2014)
2. APHIS will continue to assist SENASICA with training activities within Mexico. This may include providing personnel to deliver training or sharing training materials. (2013-2018)
3. NVSL will provide training for the implementation of new diagnosis techniques or those of recent recognition such as official tests as appropriate. (2013–2018)
4. The United States and Mexico will collaborate as needed to address requests for TB program development and training from third countries. (2013–2018)

Objective E: Improve stakeholder communication and participation.

Current Status: United States

VS has focused on enhancing stakeholder engagement in the TB Program over the past several years through working groups, public meetings, Federal Register Notices, webinars, industry and stakeholder meetings, and other methods. However, ongoing efforts that provide opportunities for stakeholder participation are needed.

Strategies: United States

Strategy 1. Include State representative as team members on APHIS TB region reviews in Mexico where appropriate. (2013–2018)

Strategy 2. Revise TB Program and import protocol webpages on the VS website. (2014)

Strategy 3. Clearly identify points of contact on the VS website. (2014)

Strategy 4. Implement communications plan for both the proposed and final rule. (Early 2014–2015)

Strategy 5. Continue to proactively engage and seek feedback on TB program revisions from stakeholders through working groups, public meetings, Federal Register Notices, webinars, industry and stakeholder meetings, and other methods. (2013–2018)

Current Status: Mexico

Communication between authorities and industry representatives is important for the appropriate operation of the tuberculosis eradication program; consequently, SENASICA has promoted the participation of the involved livestock organizations.

SENASICA has invited the National Livestock Industry to participate in the elaboration of the regionalization proposal.

It is understood that the modification in the regulation is the responsibility of the Federal authority; however, the participation of the National Livestock Industry and other related entities has been considered because they have strongly collaborated in the integration of the “TB Agreement.”

The training events are conducted not only by SENASICA but also they are carried out by specialized people, academics and the National Confederation of Livestock Organization (Confederacion Nacional de Organizaciones Ganaderas - CNOG).

Strategies: Mexico

Strategy 1. Discussion with the National Livestock Industry regarding the elements of the strategic plan and share information with the producers through the National Livestock Industry Representatives. (2013)

Strategy 2. Discuss the United States and Mexico proposed and final rules to ensure industry understanding. (Ongoing)

Joint Strategies

1. Continue to develop BNC agendas to provide updated information to States and industry and to engage in discussions. (Ongoing)

Objective F: Ensure State and Committee accountability

Current Status: United States

Historically, APHIS has classified States according to a five-level status system that is primarily determined by disease prevalence. This approach was successful in managing TB when the prevalence of TB in the United States was high. Given the current low prevalence of TB in the United States, however, reclassifying the status of an entire State when a disease is present only in a small geographic area may not be necessary to contain the disease and can be costly for the industry.

APHIS is proposing a three-tiered State classification system of “consistent,” “provisionally consistent,” and “inconsistent” statuses. These proposed statuses will be based on States’ or Tribe’s compliance with its animal health plan and reporting requirements. The State status system would require States to conduct surveillance, investigate cases, mitigate risks, and publicly share information about these activities. The proposed rule will provide that States will be held accountable for these activities and failure to do so may result in a reduction in status.

Strategies: United States

Strategy 1. Implement web-based sharing of TB case investigation and annual reports submitted by States with State, industry, and international stakeholders. (2014)

Current Status: Mexico

Currently the recognition of low prevalence regions is based in five levels according to the prevalence and compliance of 11 points based on the 552.41 and 552.38 memorandums. In the future, the publishing of the “TB Agreement” with the consideration of five health statuses listed in the memorandums will occur. The Proposed Agreement is to be published by end of 2014.

Strategies: Mexico

Strategy 1. Strengthen the technical and administrative supervision of the States.

1. Continuous assessment of the performance of the recognized States or regions with the purpose of making corrections and adjustments in the specific programs, with the participation of the industry, transparently determining the results of the reviews to establish the zoosanitary condition applicable in each entity. (Annually: 2013–2018)
2. Recording and communicating to the industry about the changes in the import and export policies, as well as the result of the various binational negotiations on this subject. (2013)

Strategy 2. Verify State data through the analysis of continuous reports and review visits, as many as necessary, as appropriate. (Annually 2013–2014)

Strategy 3. Establish a continuous audit process for the State Committees to ensure compliance with the program and correct use of the budget. (2013–2018)

Joint Strategies

1. The United States and Mexico will work jointly with the Mexican regions on implementing United States proposed classes for imports relative to Mexico's classification system. (Upon publication of the final TB/brucellosis rule)

Appendix 1

Tuberculosis status of foreign regions.

(a) Level I regions. A region that meets APHIS requirements to have a program for bovine tuberculosis, and a prevalence of tuberculosis in their domestic bovine herds of less than .01 percent.

(b) Level II regions. A region that meets APHIS requirements to have a program for bovine tuberculosis, and a prevalence of tuberculosis in their domestic bovine herds equal to or greater than .01 percent, but less than .1 percent.

(c) Level III regions. A region that meets APHIS requirements to have a program for bovine tuberculosis, and a prevalence of tuberculosis in their domestic bovine herds equal to or greater than .1 percent, but less than .5 percent.

(d) Level IV regions. A region that meets APHIS requirements to have a program for bovine tuberculosis, and a prevalence of tuberculosis in their domestic bovine herds equal to or greater than .5 percent, or to be unassessed by APHIS with regard to tuberculosis prevalence.