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**OPTIONS FOR REDUCING CONGESTION AT THE MEXICAN
BORDER**

Paper prepared for the
**FIFTH ANNUAL NORTH AMERICAN AGRIFOOD MARKET INTEGRATION CONSORTIUM
WORKSHOP**

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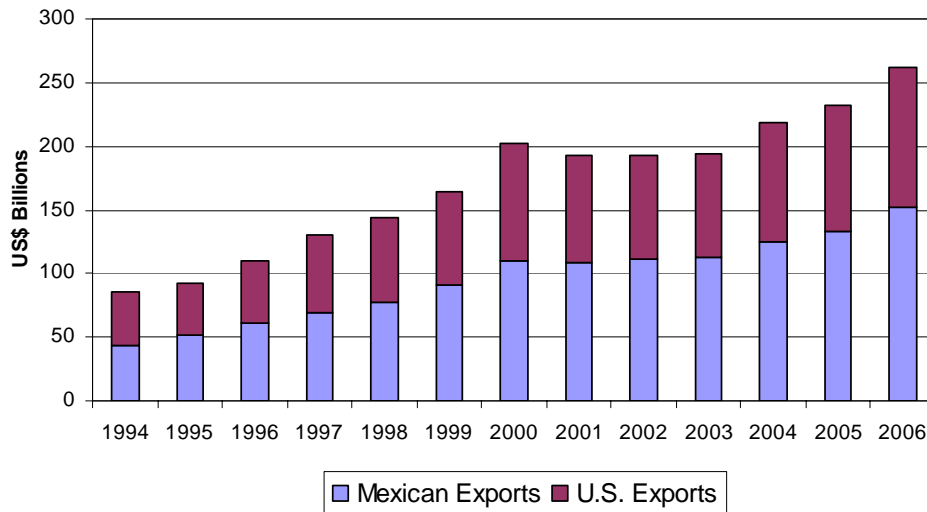
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Introduction

Since the implementation of the North American Free Trade Agreement (NAFTA) in 1994, merchandise trade of between the U.S. and Mexico has tripled from \$86 billion to \$262 billion in 2006 (Figure 1) ⁽¹⁾, representing an annual growth close to 10 percent. However, growth in this 12-year period has not been constant. The first six years after the enactment of NAFTA had a very aggressive growth of more than 15 percent per year, while the average annual growth between 2000 and 2006 fell to close to less than 5 percent. Mexican exports to the U.S. have grown even faster than total surface merchandise trade.

Figure 1 - U.S. - Mexico Merchandise Trade (truck and rail)



Source: Bureau of Transportation Statistics, Transborder Surface Freight Data

Mexican agricultural products exports have followed similar growth rates as the total land merchandise exports. This increase in trade between Mexico and the U.S. has stressed land ports of entry creating inefficiencies that cause delays and transaction costs

that affect land trade between the two countries. Inefficiencies at land port of entry have even a greater effect on agricultural export movements.

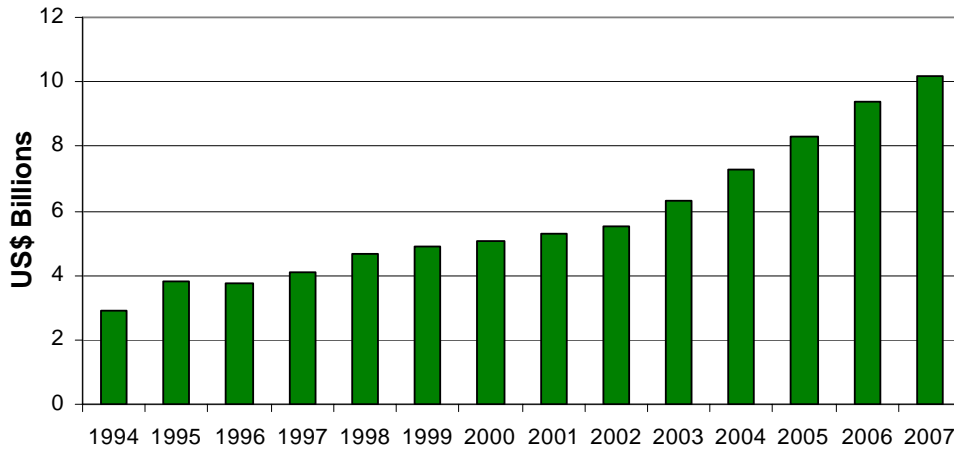
The objectives of this paper are to analyze agricultural trade characteristics and transportation practices between Mexico and the U.S., identify specific issues, and develop alternatives to reduce congestion at land ports of entry.

This paper is organized as follows. The next section provides a brief overview of the U.S./Mexico agricultural trade characteristics and evolution. The paper then describes the northbound commercial crossing process from Mexico into the U.S. by truck. This section describes the typical border crossing process, the security programs that have been implemented, and the additional inspections that agricultural products are subject to when exported from Mexico into the U.S. The paper identifies several areas of opportunity to improve the agricultural export process and concludes with specific recommendations to reduce congestion at the border.

U.S./Mexico Agricultural Product Trade Characteristics

Mexican exports of agricultural products to the U.S. have experienced an average annual growth rate of 10 percent, from 2.9 billion dollars in 2004 to 10.2 billion in 2007 (²). In the last five years (2001-2007) Mexican agricultural exports have increased even at a faster pace, close to 15 percent per year (Figure 2). Three quarters of the Mexican agricultural exports are dominated by horticultural products.

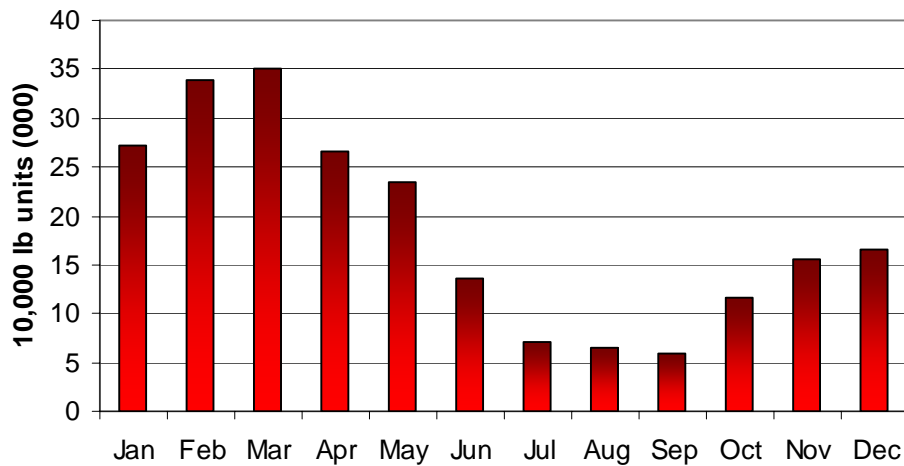
Figure 2 – Evolution of Mexican Agricultural Exports to the U.S.



Source: USDA, Foreign Agricultural Trade of the United States Database.

Seasonal differences in Mexican horticultural exports are noticed throughout the year. Tomatoes represent the largest horticultural exports to the U.S. and have a peak season between January and May (Figure 3). Other agricultural products also present seasonal changes that have an impact on the transportation infrastructure and operations.

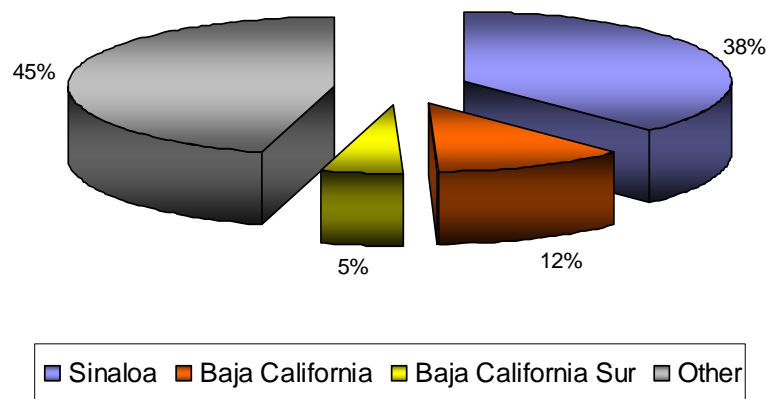
Figure 3 – 2007 Monthly Tomato Exports from Mexico into the U.S.



Source: USDA, Foreign Agricultural Trade of the United States Database.

The majority of the tomatoes produced in Mexico come from the Northwestern states. Two states account for 50 percent of the production - Sinaloa with 38 percent and Baja California with 12 percent (³). Other states in much smaller percentages, account for the remaining Mexican national production of tomatoes (Figure 4).

Figure 4 – State production of Tomatoes in Mexico in 2005

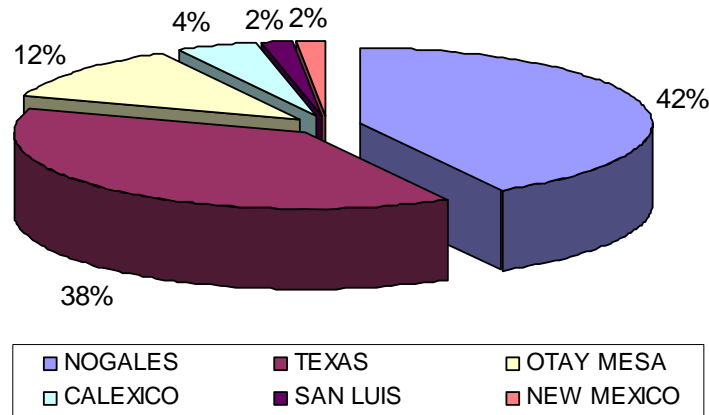


Source: Servicio de Información Agroalimentaria y Pesquera-SAGARPA, Mexico.

Mexican vegetable exports are primarily done by truck. The Mexican rail system has been improving since the privatization of the system. However, rail is used mainly to move bulk products, such as grain that is imported into Mexico from the U.S. and Canada. The majority of Mexican exports of fruits and vegetables cross the border through two ports of entry or districts. The Nogales border crossing in Arizona carried almost half of the total exports. Nogales and the Texas districts account to 80 percent of

the total exports into the U.S. Other border crossings where Mexican fruits and vegetables are exported include locations at California and New Mexico (Figure 5).

Figure 5 – Mexican Fruits and Vegetables Export Locations



Source: USDA, Foreign Agricultural Trade of the United States Database.

The Northbound Commercial Vehicle Border Crossing Process

Over 5 million trucks crossed from Mexico into the United States in 2006. The number of truck crossings from Mexico into the U.S. has even higher growth rates than total trade, as truck continues to dominate Mexican exports to the U.S. The number of truck crossings is expected to continue growing as trade between the two North American Free Trade Agreement (NAFTA) partners continues to grow.

NAFTA's original trucking provisions regarding opening the U.S. border to Mexican trucks were designed to improve transportation efficiency by enabling more seamless cross-border trucking operations. Generally, Mexican tractors are restricted to circulation on a narrow commercial zone extending 3 to 25 miles (or up to 75 miles in Arizona). In 2007, the U.S. and Mexican governments announced that they had reached a

resolution to the cross-border trucking impasse. The agreement calls for a one-year pilot project involving up to 100 Mexican and 100 U.S. trucking firms that wish to engage in direct long-haul movements across the border and beyond the commercial zone. Mexican carriers must undergo safety audits by U.S. inspectors in Mexico; meet all safety, environmental, insurance, homeland security, and other regulations imposed on U.S. trucking firms; and pay all applicable U.S. state and federal taxes and registration fees. The pilot project will be evaluated after one year, at which time a decision regarding the future of the initiative will be made.

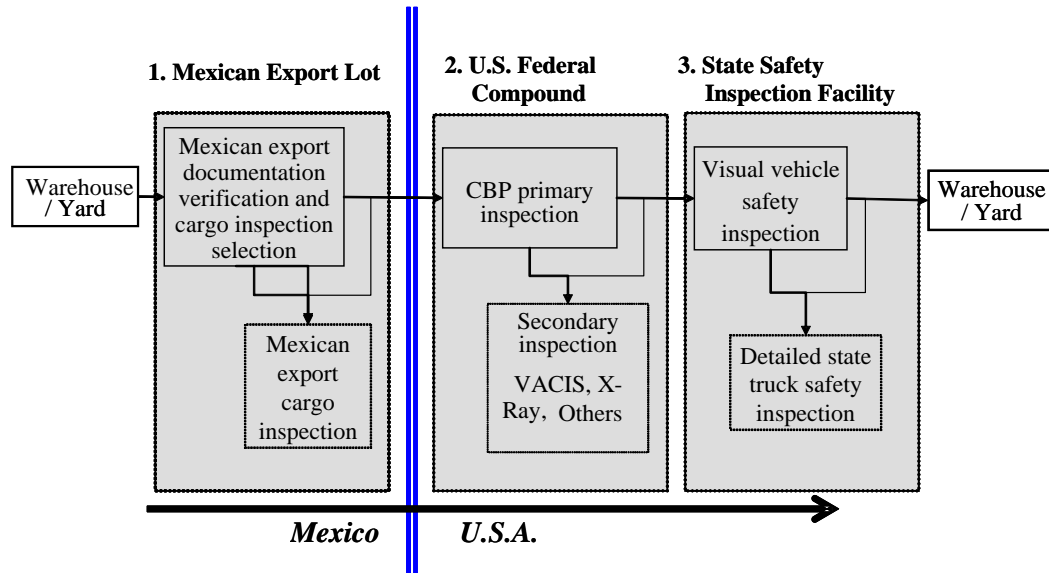
The restriction that limits safety inspections to those conducted in the U.S. is one of the fundamental reasons why Mexican truck shipments into the United States are required to use a drayage or transfer tractor that picks up a trailer at the Mexican side of the border and crosses it into the U.S., where it is dropped so a U.S. long-haul tractor can carry the trailer into U.S. territory.

The typical northbound border crossing process requires a shipper in Mexico to file shipment data with both Mexican and U.S. agencies, prepare both paper and electronic forms and, as mentioned earlier, use a drayage or transfer tractor to move the goods from one country to the other. Once the shipment is at the border with the drayage or transfer tractor and an authorized driver, the process flows through three main physical potential inspection areas:

- Mexican export lot.
- U.S. Federal compound.
- State safety inspection facility.

A description of the main activities that take place in the northbound border crossing process is presented in the following sections and illustrated in figure 6 (4).

Figure 6 - Northbound Commercial Border Crossing Process



Source: Villa J.C., Status of the U.S.-Mexico Commercial Border Crossing Process: Analysis of Recent Studies and Research.

Mexican Export Lot

The drayage driver with the required documentation proceeds into the Mexican Customs compound. For audit and interdiction purposes, Mexican Customs conducts inspections consisting of a physical review of the cargo of randomly selected outbound freight prior to its export. Shipments that are not selected proceed to the exit gate, cross the border, and continue on to the U.S. port of entry.

U.S. Federal Compound

At the primary inspection booth, the driver of the truck presents identification (proof of citizenship or a valid visa or laser card), a copy of the Inward Cargo Manifest, and the commercial invoice to the processing agent. The U.S. Customs and Border Protection (CBP) inspector at the primary inspection booth uses a computer terminal to cross-check the basic information about the driver, vehicle, and load with information sent previously by the U.S. Customs broker and the carrier, then makes a decision to refer the truck, driver, or load for a more detailed secondary inspection of any or all of these elements or releases the truck to the exit gate.

Beginning April 19, 2007, all carriers must electronically submit an e-Manifest before arriving at any southern U.S. land port. Any carriers who arrive without first submitting an e-Manifest will be denied permit to proceed beginning June 19, 2007. As part of the Automated Commercial Environment (ACE) CBP program, the e-Manifest is submitted by motor carriers electronically and enables CBP to pre-screen the crew, conveyance, equipment, and shipment information before the truck arrives at the border. This allows CBP to focus its efforts and inspections on high-risk commerce and minimize unnecessary delays for low-risk commerce.

A secondary inspection includes any inspection that the driver, freight, or conveyance undergoes between the primary inspection and the exit gate of the U.S. Federal Compound. Personnel from CBP usually conduct these inspections, which can be done by physically inspecting the conveyance and the cargo, or by using non-intrusive inspection equipment (such as x-ray). Within the compound, the U.S. Department of Transportation (USDOT), Federal Motor Carrier Safety Administration (FMCSA), and

the Food and Drug Administration (FDA) have personnel and facilities to perform inspections when required. A vehicle audit could happen at the Federal Compound or the State Safety Inspection Facility depending on practice.

State Safety Inspection Facility

In the majority of the ports of entry, the stations are located adjacent to the Federal compounds. State police inspect conveyances to determine whether they are in compliance with U.S. safety standards and regulations. When the initial visual inspection finds any violation, the truck proceeds to a more detailed inspection at a special facility.

After leaving the State inspection facility, the driver typically drives to the freight forwarder or customs broker yard to drop off the trailer for later pickup by a long-haul tractor bound for the final destination.

Security

CBP has implemented several security programs at land ports of entry. The Free and Secure Trade (FAST) program is in operation at several crossings and its objective is to offer expedited clearance to carriers that have demonstrated supply chain security and are enrolled in the Customs Trade Partnership Against Terrorism (C-TPAT). FAST shipments use a special booth and a FAST-only lane at the international bridges. Non-FAST-enrolled commercial vehicles handle traditional paper documentation that takes longer to process, and they are more likely to experience secondary inspections that sometimes require unloading the truck for detailed inspection.

For a shipment to be considered a “FAST Shipment” it needs to comply with very specific regulations. The shipper in Mexico, the carrier that is crossing the cargo and the driver have to be C-TPAT certified.

The time required for a typical Mexican export shipment to make the trip from the yard, distribution center or the manufacturing plant in Mexico to the exit of the State Inspection Facility is dependent on the number of secondary inspections required, as well as the number of inspection booths in service and traffic volume at that specific time of day—and if the shipment is eligible for FAST.

Agricultural Truck Movement Process

Adding to the complexity of the typical northbound truck movement from Mexico into the U.S., agricultural products undergo additional inspections from the origin to the border. As mentioned earlier, close to 50 percent of Mexican exports into the U.S. cross the border through the Nogales port of entry. Most of these produce originate in the Mexican states of Sinaloa and Sonora. The journey between the origin in Sinaloa and Sonora and Nogales is approximately 12 hours and trucks are subject to inspections by military personnel searching for drugs and arms. There are at least in 3 inspection points before reaching Nogales that produce delays that could double the transit time. These inspections are performed by military personnel that are not trained to inspect produce and they can contaminate the cargo. Inspections also break the cold chain (temperature-controlled supply chain) damaging the product. In order to open the containers, the military personnel break seals that have been placed at origin and are required by CBP to be able to be considered a FAST shipment.

Once a “produce” shipment reaches the border region, it can cross using the typical drayage system. However, some products are required to go through a mandatory quality inspection by USDA officials. This process could be done either in Mexico or once products are in the U.S. Commodities that require USDA inspections include tomatoes, grapes, onions, and oranges. At the Nogales crossing, this transaction could be carried out at the Mexican growers' organization for the state of Sinaloa (Confederación de Asociaciones Agrícolas del Estado de Sinaloa - CAADES), or other similar facilities that provide space for Agricultural Marketing Inspections

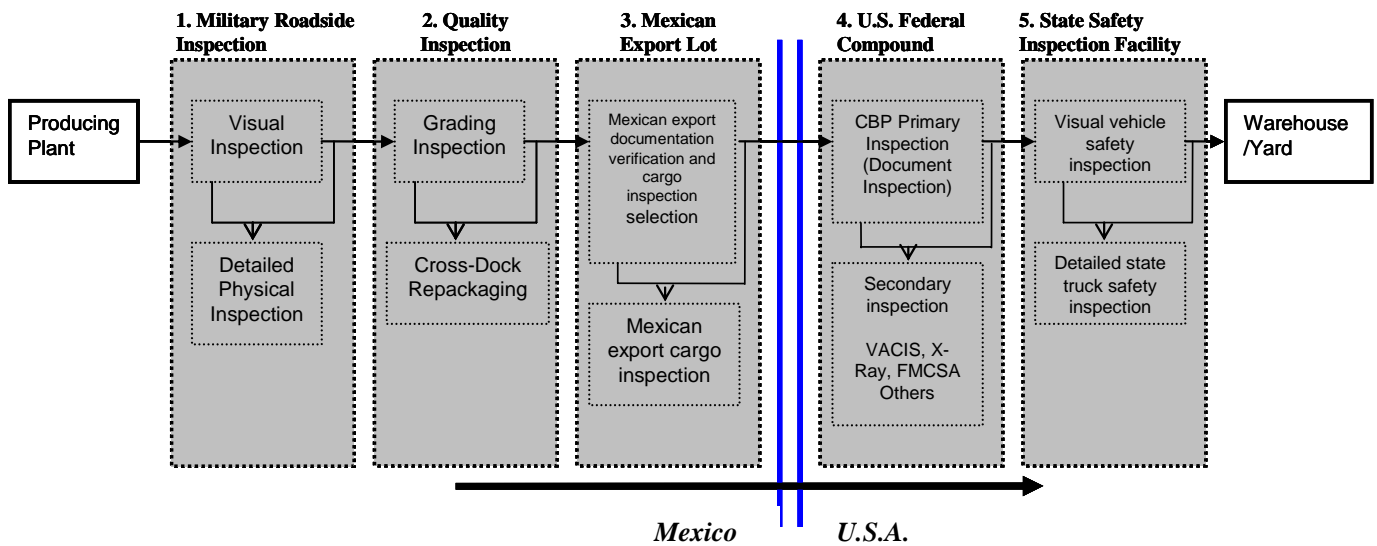
These facilities are used to perform the inspection as well as cross-dock some products to make sure that trucks crossing into the U.S. comply with vehicle weight requirements. Mexican truck weight and size regulations allow for heavier trucks and most of the shipments take advantage of this to load trucks to the maximum capacity. However, trucks in the U.S. are limited to a maximum of 80,000 pounds of gross vehicle weight.

Truck drivers that cross into the U.S are required to have U.S. issued visas and most of the long-haul drivers coming from the interior of Mexico do not have these valid visas. Trucks drivers with visas are in high demand during the peak season and sometimes there is a shortage of drivers. This creates additional delays for truck movements that have been graded and reloaded to comply with truck weight and size. As mentioned earlier, for a shipment to qualify as “FAST shipment”, the driver needs to be certified and the load has to be sealed from origin. The process described in this section, in which seals are broken by military inspections, shipments are cross-docked and

inspected by agricultural officials before reaching the CBP inspection makes almost impossible for an agricultural Mexican export to qualify for a FAST shipment.

The process for an agricultural export from southern Mexico into the U.S. is even more complicated, as shown in the following diagram. Adding to the 3 inspection steps at the border crossing itself, trucks with Mexican exports of fruits and vegetables are subject to two additional inspection processes-several military roadside inspections and the quality inspection.

Figure 7- Mexican Agricultural Truck Export Process



Source: Developed by the Researchers

Areas of Opportunity

Several areas of opportunity to improve the export process of agricultural products from Mexico to the U.S. are identified from the description of the processes presented in the first part of this paper. Four areas of opportunity for improvement were identified:

Number of Inspections

Mexican vegetable exports to the U.S by truck are subject to at least 3 physical inspections. The Mexican military inspections are done at roadside by personnel that are not trained to perform them in a way that the products are not damaged or contaminated. The time that these inspections require could double the travel time, and the conveyance is not planned for longer trips. The brake in the cold chain that these inspections create is an additional problem to fruits or vegetables that are damaged if they are not transported under controlled temperature.

Inspections performed between the origin of the shipment and the U.S Customs compound (CBP) are required to break door seals that are mounted at origin. Breaking the seals will disqualify that shipment for participating in the FAST program, as the supply chain security is being compromised and there is no record of where the seal was broken.

FAST/C-TPAT Participation

Given the seasonal characteristics of the vegetable exports, the number of certified carriers and drivers on the C-TPAT and therefore FAST programs is very limited. Infrastructure at the border crossing dedicated to the FAST program is underutilized, creating additional congestion and delay at the non-FAST lanes and inspection booths. Shippers and carriers don't really find any benefit by enrolling to the

FAST/C-TPAT programs as the number of inspections by Mexican authorities before the shipment reaches the U.S. federal compound, create more delays than the reduced inspection at the border for FAST shipments.

Lack of Adequate Infrastructure

As mentioned earlier, Mexican exports into the U.S. by truck have experienced a healthy growth rate for the last decade. This has stressed the border crossing infrastructure, both physical and human. The numbers of inspectors at the different stages of the process have not grown at the same pace as the number of shipments. Some products need to be inspected and graded before entering the U.S. and there is not sufficient staff to cope with peak demand periods.

Additional border crossing physical infrastructure is needed to cope with increased demand. More traffic lanes at ports of entry and inspections booths are needed to serve the higher demand. At the Texas ports of entry, all commercial crossings are international bridges that require additional lanes to serve truck traffic.

Hours of Operation

Some border delays occur due to the lack of coordination among the different agencies that operate on both sides of the border. Sometimes, due to faulty communication between U.S. and Mexican authorities, the hours of operation at each side of the border are different, particularly during holidays. Other cause of delay that has been reported is the different hours of operation of a particular agency. During periods of

high demand, border crossing facilities do not extend their hours of operation creating bottlenecks and congestion.

Recommendations

In order to increase the efficiency of Mexican exports of food and vegetables to the U.S. truck there are two areas that require substantial changes. The most important one is at the ports of entry. These border crossings are check points where delays and congestion is adding costs to the movement of fruit and vegetables between Mexico and the U.S. The second area that has room for improvement is the part of the trip between the origin and the port of entry into the U.S.

Increase Port of Entry Throughput

There are two ways to increase throughput at ports of entry. One is by increasing physical capacity at the ports of entry by changes in the infrastructure. These changes usually require time and relatively high investment. Another way to increase throughput is by changing processes and procedures. These changes could be implemented faster once consensus is reached among all stakeholders.

Processes

Two changes in processes were identified that could improve the movement of fruits and vegetables from Mexico into the U.S. at the border.

Design Agricultural FAST Shipment Process

Given the current rules to classify as a FAST shipment, most of the fruit and vegetable exports from Mexico into the U.S. by truck do not qualify as FAST. Shippers, which in this case are producers, do not qualify as C-TPAT certified because it would be difficult to secure the supply chain of fruits and vegetables, especially for small and medium producers. But even those that could be certified, the seasonality of the exports make very difficult to have a certified pool of C-TPAT/FAST drivers that could take the product from origin through destination. And to make the process even more complicated for the certification, military inspections break the secure supply chain, making most of the trips non compliant with FAST requirements.

A special version of the FAST program could be developed for fruits and vegetables. The trip could be divided into sections and at the final section could be the one considered FAST, from the inspection and grading station at the Mexican side of the border to the port of entry facility. Most of the shipments stop before crossing and use a driver with U.S. visa. The last point before crossing that could be a grading station or cross-docking location at a warehouse could become C-TPAT certified. When the shipment leaves this location with a FAST certified driver, using a certified carrier, it would be eligible to use the FAST lane, reducing uncertainty and travel time through the crossing.

Mexico should promote trucking firms, at least those from the northwestern region, to comply with safety audits by U.S. inspectors; meet all safety, environmental, insurance, homeland security, and other regulations imposed on U.S. trucking firms; and pay all applicable U.S. state and federal taxes and registration fees, so that in the near

future Mexican truck shipments into the United States may not require the use a drayage or transfer tractor and long-haul Mexican tractors can carry the trailers into U.S. territory.

The implementation of these proposals should be done coordinating with Customs and Border Protection and grading stations and warehouses at the border. The application processes for FAST would need to be modified to make assure that the private companies or associations like CAADES could be certified. The benefit of this proposal would be that the number of exports through FAST lanes would be increased, reducing congestion and better utilizing current infrastructure.

Coordinate Hours of operations

One alternative to improve throughput at border crossings without adding infrastructure is to increase hours of operation. The number of crossings into the U.S. increases substantially during the peak season. Increasing the hours of operation would smooth the demand curve. Coordination among all stakeholders is required and extensive planning is needed to implement these actions. Not only CBP and other inspection agencies need to add staff for the additional hours of operation, but all the other stakeholders in the private sector (customs brokers, drivers, carriers, grading, warehouses, etc.) would need to also be prepared to offer services throughout the day.

The implementation of this measure requires advance notice to all stakeholders and a specific duration of the measure needs to be also specified in advance so that the costs and benefits of the measure could be calculated. Several short-term experiments have been tested and failed due to the lack of coordination of stakeholders and a clear assessment of benefits.

Coordinate Security Operations

Since the typical northbound border crossing process requires a shipper in Mexico to file shipment data with both Mexican and U.S. agencies, prepare both paper and electronic forms and use a drayage or transfer tractor to move the goods from one country to the other and truck drivers that cross into the U.S are required to have U.S. issued visas, hence the inspections conducted by Mexican Customs, consisting of a physical review of the cargo of randomly selected outbound freight prior to its export, should qualify as CBP inspected on to the U.S. port of entry.

Changes in Domestic Procedures in Mexico

Before the export shipments reach the international border crossing, there are several changes that could be implement that would increase the efficiency of the process. SENASICA in Mexico could define non-intrusive inspection protocols at the military checkpoints. By training the inspectors on the new protocol, the chances of contamination of fruits and vegetables would be reduced. A seal protocol and procedure could also be implemented so that a control of the number or code of the seal could be managed.

Infrastructure

The infrastructure at international land ports of entry has not been able to grow at the same pace as international trade between the two countries. Additional physical infrastructure is needed. This includes adding traffic lanes on the Mexican side of the

border, as well as adding inspection booths and staffing to operate the additional infrastructure.

The construction of additional international crossings requires presidential permits, and the process to obtain these permits is lengthy (5 to 10 years). Adding infrastructure also requires special permits and involvement of multiple agencies in Mexico and the U.S. The port of entry at Nogales recently increased capacity by adding lanes and reconfiguring the port of entry. However, these changes were not sufficient to cope with peak season exports of fruits and vegetables. At the Rio Grande Valley a new international bridge is under construction, but current plans only consider movement of passenger vehicles through this new bridge (Anzalduas).

Combining changes in processes and adding infrastructure would provide the best alternative to improve the border crossing process. The result will be reduction in congestion and delay, and reduction in costs.

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