**Table S1.** Reported foods in National Dietary Survey (2018-2018) and its respective groups for optimization model input.

Foods	Groups
Rice	Rice
Whole rice	Rice
Olive oil	Olive Oil
Sugar-sweetened beverages	Sugar-sweetened beverages (SSB)
Cookies	Cookies
Cakes	Cakes
Beef	Red meats
Liver	Red meats
Other animal meats	Red meats
Pork	Red meats
Processed meat	Red meats
Sweets	Sweets
Sauces and condiments	Fast foods
Snacks	Fast foods
Pineapple	Fruits and Vegetables (FV)
Acai Berry	Fruits and Vegetables (FV)
Acerola	Fruits and Vegetables (FV)
Plum	Fruits and Vegetables (FV)
Banana	Fruits and Vegetables (FV)
Cashew	• • • • • • • • • • • • • • • • • • • •
Khaki	Fruits and Vegetables (FV)
	Fruits and Vegetables (FV)
Star fruit	Fruits and Vegetables (FV)
Coconut	Fruits and Vegetables (FV)
Earl fruit	Fruits and Vegetables (FV)
Cupuaçu	Fruits and Vegetables (FV)
Fig	Fruits and Vegetables (FV)
Guava	Fruits and Vegetables (FV)
Soursop	Fruits and Vegetables (FV)
Jackfruit	Fruits and Vegetables (FV)
Kiwi	Fruits and Vegetables (FV)
Orange	Fruits and Vegetables (FV)
Lemon	Fruits and Vegetables (FV)
Apple	Fruits and Vegetables (FV)
Papaya	Fruits and Vegetables (FV)
Mango	Fruits and Vegetables (FV)
Passion fruit	Fruits and Vegetables (FV)
Watermelon	Fruits and Vegetables (FV)
Melon	Fruits and Vegetables (FV)
Other fruits	Fruits and Vegetables (FV)
Pear	Fruits and Vegetables (FV)
Peach	Fruits and Vegetables (FV)
Strawberry	Fruits and Vegetables (FV)
Tangerine	Fruits and Vegetables (FV)
Grape	Fruits and Vegetables (FV)
Avocado	Fruits and Vegetables (FV)
Continues	· · · · · · · · · · · · · · · · · · ·

**Table S1.** Reported food list in National Dietary Survey (2018-2018) and its respective groups for optimization model input (continuation).

Foods	Groups
Pumpkin	Fruits and Vegetables (FV)
Zucchini	Fruits and Vegetables (FV)
Eggplant	Fruits and Vegetables (FV)
Beet	Fruits and Vegetables (FV)
Broccoli	Fruits and Vegetables (FV)
Onion	Fruits and Vegetables (FV)
Carrot	Fruits and Vegetables (FV)
Chayote	Fruits and Vegetables (FV)
Cauliflower	Fruits and Vegetables (FV)
Peas	Fruits and Vegetables (FV)
Scarlet eggplant	Fruits and Vegetables (FV)
Gherkin	Fruits and Vegetables (FV)
Corn	Fruits and Vegetables (FV)
Palm Heart	Fruits and Vegetables (FV)
Cucumber	Fruits and Vegetables (FV)
Pequi or Souari nut	Fruits and Vegetables (FV)
Bell pepper	Fruits and Vegetables (FV)
Okra	Fruits and Vegetables (FV)
Radish	Fruits and Vegetables (FV)
Milkweed	Fruits and Vegetables (FV)
Tomato	Fruits and Vegetables (FV)
Pods	Fruits and Vegetables (FV)
Chard	Fruits and Vegetables (FV)
Cress	Fruits and Vegetables (FV)
Lettuce	Fruits and Vegetables (FV)
Endive	Fruits and Vegetables (FV)
Chicory	Fruits and Vegetables (FV)
Kale	Fruits and Vegetables (FV)
Spinach	Fruits and Vegetables (FV)
Mustard Leaf	Fruits and Vegetables (FV)
Cabbage	Fruits and Vegetables (FV)
Arugula	Fruits and Vegetables (FV)
Serralha	Fruits and Vegetables (FV)
American taro	Fruits and Vegetables (FV)
Chicken	Chicken
Yogurt	Dairy
Milk	Dairy
Non-fat milk	Dairy
Cheese	Dairy
Fava bean	Beans
Beans	Beans
Chickpeas	Beans
Lentil	Beans
Margarine	Margarine
Continues	

**Table S1.** Reported food list in National Dietary Survey (2018-2018) and its respective groups for optimization model input (continuation).

Foods	Groups
Pasta	Pasta
Nuts	Nuts
Peanut	Nuts
Egg	Eggs
Breads	Breads
Fish	Fish and seafood
Seafood	Fish and seafood
Manioc flour	Tubers
Yam	Tubers
Tubers	Tubers

**Table S2.** Pesticides residues origin and its extrapolations.

Foods or food groups	Origin
Pineapple	PARA's residues database
Zucchini	PARA's residues database
Lettuce	PARA's residues database
Garlic	PARA's residues database
Rice	PARA's residues database
Banana	PARA's residues database
Potato	PARA's residues database
Sweet Potato	PARA's residues database
Beet	PARA's residues database
Onion	PARA's residues database
Carrot	PARA's residues database
Chayote	PARA's residues database
Kale	PARA's residues database
Beans	PARA's residues database
Guava	PARA's residues database
Orange	PARA's residues database
Apple	PARA's residues database
Papaya	PARA's residues database
Manioc	PARA's residues database
Mango	PARA's residues database
Corn	PARA's residues database
Strawberry	PARA's residues database
Cucumber	PARA's residues database
Bell pepper	PARA's residues database
Cabbage	PARA's residues database
Tomato	PARA's residues database
Wheat	PARA's residues database PARA's residues database
Grape	PARA's residues database
Cashew	LabTox's residues database
	LabTox's residues database  LabTox's residues database
Khaki	
Soursop	Pineapple residues
Pumpkin	Zucchini residues
Whole rice	Rice residues
Lemon	Orange residues
Tangerine	Orange residues
Pear	Apple residues
Yam	Manioc residues
Cassava flour	Manioc residues
Wheat flour	Wheat residues
Peas	Bean's residues
Fava bean	Bean's residues
Chickpeas	Bean's residues
Lentil	Bean's residues
Pods	Bean's residues
Meats (Beef, pork, chicken, and fish)	5% of garlic pesticide residues
Cake	50% of wheat flour pesticide residues
Pasta	50% of wheat flour pesticide residues
Continues	

Table S2. Pesticides residues origin and its extrapolations (continuation).

Foods or food groups Origin		
Cookies	50% of wheat flour pesticide residues	
Bread	50% of wheat flour pesticide residues	
Snacks	50% of wheat flour pesticide residues	
Acerola	Fruits average pesticide residues	
Avocado	Fruits average pesticide residues	
Plum	Fruits average pesticide residues	
Peach	Fruits average pesticide residues	
Passion fruit	Fruits average pesticide residues	
Watermelon	Fruits average pesticide residues	
Melon	Fruits average pesticide residues	
Acai Berry	Fruits average pesticide residues	
Earl fruit	Fruits average pesticide residues	
Cupuaçu	Fruits average pesticide residues	
Kiwi	Fruits average pesticide residues	
Gherkin	Fruits average pesticide residues	
Region fruits	Fruits average pesticide residues	
Pequi or Souari nut	Fruits average pesticide residues	
Star fruit	Fruits average pesticide residues	
Jackfruit	Fruits average pesticide residues	
Fig	Fruits average pesticide residues	
Chard	Leafy vegetables average pesticide residues	
Cress	Leafy vegetables average pesticide residues	
Endive	Leafy vegetables average pesticide residues	
Chicory	Leafy vegetables average pesticide residues	
Broccoli	Leafy vegetables average pesticide residues	
Cauliflower	Leafy vegetables average pesticide residues	
Spinach	Leafy vegetables average pesticide residues	
Mustard Leaf	Leafy vegetables average pesticide residues	
Milkweed	Leafy vegetables average pesticide residues	
American taro	Leafy vegetables average pesticide residues	
Arugula	Leafy vegetables average pesticide residues	
Okra	Non-starchy Vegetable's average pesticide residues	
Eggplant	Non-starchy Vegetable's average pesticide residues	
Scarlet eggplant	Non-starchy Vegetable's average pesticide residues	
Palm Heart	Tuber average pesticide residues	
Radish	Tuber average pesticide residues	
Regional tubers	Tuber average pesticide residues	

Table S3. Food groups for acceptability constraints on optimization models.

Beans Chickpeas Beans Fava bean Lentil Beans Breads Breads Breads Cookies Cook	Foods	Constraint groups
Fava bean Lentil Beans Breads Breads Cakes Cookies Cookies Cookies Dairy Milk Dairy Non-fat milk Dairy Yogurt Dairy Egg Eggs Sauces and condiments Fast foods Snacks Fast foods Snacks Fast foods Acai Berry Fruits Acerola Fruits Avocado Fruits Avocado Fruits Cashew Fruits Coconut Cupuaçu Fruits Friuts Friuts Friuts Friuts Friuts Friuts Friuts Friuts Cashew Fruits Friuts Friuts Friuts Friuts Friuts Friuts Friuts Friuts Friuts Coshew Fruits Friuts Fr	Beans	Beans
Lentil         Beans           Breads         Breads           Cakes         Cakes           Cookies         Cookies           Cheese         Dairy           Milk         Dairy           Non-fat milk         Dairy           Yogurt         Dairy           Egg         Eggs           Sauces and condiments         Fast foods           Snacks         Fast foods           Acai Berry         Fruits           Acai Berry         Fruits           Acai Berry         Fruits           Acrola         Fruits           Acrola         Fruits           Acrola         Fruits           Apple         Fruits           Arocado         Fruits           Cashew         Fruits           Cashew         Fruits           Coconut         Fruits           Capuaqu         Fruits           Earl fruit         Fruits           Grape         Fruits           Guava         Fruits           Jackfruit         Fruits           Khaki         Fruits           Khaki         Fruits           Melon         Fruits	Chickpeas	Beans
Breads         Breads           Cakes         Cakes           Cookies         Cookies           Cheese         Dairy           Milk         Dairy           Non-fat milk         Dairy           Yogurt         Dairy           Egg         Eggs           Sauces and condiments         Fast foods           Snacks         Fast foods           Acai Berry         Fruits           Acerola         Fruits           Acerola         Fruits           Apple         Fruits           Avocado         Fruits           Banana         Fruits           Cashew         Fruits           Cashew         Fruits           Cashew         Fruits           Capuaçu         Fruits           Earl fruit         Fruits           Grape         Fruits           Grape         Fruits           Guava         Fruits           Jackfruit         Fruits           Khaki         Fruits           Kiwi         Fruits           Lemon         Fruits           Malon         Fruits           Papaya         Fruits	Fava bean	Beans
Cakes Cookies Cookies Cookies Cookies Cheese Dairy Milk Dairy Non-fat milk Dairy Yogurt Dairy Fgg Egg Eggs Sauces and condiments Fast foods Snacks Fast foods Acai Berry Fruits Acerola Fruits Avocado Fruits Avocado Fruits Cashew Fruits Coconut Fruits Coconut Fruits Fruits Fig Fruits Fruits Fruits Fruits Fruits Fruits Fruits Cupuaçu Fruits Fruit	Lentil	Beans
Cookies         Cookies           Cheese         Dairy           Milk         Dairy           Non-fat milk         Dairy           Yogurt         Dairy           Egg         Eggs           Sauces and condiments         Fast foods           Snacks         Fast foods           Acai Berry         Fruits           Acai Berry         Fruits           Acarcla         Fruits           Acerola         Fruits           Apple         Fruits           Avocado         Fruits           Banana         Fruits           Cashew         Fruits           Coconut         Fruits           Capace         Fruits           Earl fruit         Fruits           Earl fruit         Fruits           Grape         Fruits           Grape         Fruits           Guava         Fruits           Jackfruit         Fruits           Kiwi         Fruits           Kiwi         Fruits           Melon         Fruits           Melon         Fruits           Pasaya         Fruits           Peach         Fruits	Breads	Breads
Cheese     Dairy       Milk     Dairy       Non-fat milk     Dairy       Yogurt     Dairy       Egg     Eggs       Sauces and condiments     Fast foods       Snacks     Fast foods       Acarola     Fruits       Acerola     Fruits       Apple     Fruits       Avocado     Fruits       Banana     Fruits       Cashew     Fruits       Coconut     Fruits       Coupuaçu     Fruits       Earl fruit     Fruits       Fig     Fruits       Grape     Fruits       Grape     Fruits       Guava     Fruits       Jackfruit     Fruits       Kiwi     Fruits       Kiwi     Fruits       Lemon     Fruits       Mango     Fruits       Melon     Fruits       Orange     Fruits       Other fruit     Fruits       Pasaion fruit     Fruits       Peach     Fruits       Peach     Fruits       Pina     Fruits       Soursop     Fruits       Plum     Fruits       Soursop     Fruits       Star fruit     Fruits       Humerican taro	Cakes	Cakes
Milk Dairy Non-fat milk Dairy Yogurt Dairy Yogurt Dairy Egg Eggs Sauces and condiments Fast foods Snacks Fast foods Acai Berry Fruits Acerola Fruits Apple Fruits Avocado Fruits Banana Fruits Cashew Fruits Cupuaçu Fruits Cupuaçu Fruits Fig Fruits Grape Fruits Guava Fruits Khaki Fruits Khaki Fruits Khaki Fruits Khaki Fruits Lemon Fruits Mango Fruits Melon Fruits Papaya Fruits Passion fruit Fruits Pafit Fruits Pafit Fruits Papaya Fruits Papaya Fruits Papaya Fruits Passion fruit Fruits Papaya Fruits Papaya Fruits Papaya Fruits Papaya Fruits Papaya Fruits Passion fruit Fruits Passion fruit Fruits Papaya Fruits Passion fruit Fruits Passion fruit Fruits Papaya Fruits Passion fruit Fruits Papaya Fruit	Cookies	Cookies
Non-fat milk Yogurt Dairy Yogurt Dairy Egg Egg Sauces and condiments Fast foods Snacks Fast foods Acai Berry Fruits Acerola Apple Fruits Avocado Fruits Avocado Fruits Coshew Fruits Coconut Fruits Fruits Fruits Fruits Fruits Grape Guava Fruits Guava Fruits Haki Fruits Fruits Fruits Fruits Fruits Grape Fruits Guava Fruits Papaya Fruits Papaya Fruits Papaya Fruits Passion fruit Fruits Pear Fruits Pear Fruits Pear Fruits Pineapple Fruits Fruits Soursop Fruits Star fruit Fruits Star fruit Fruits Star fruit Fruits	Cheese	Dairy
YogurtDairyEggEggsSauces and condimentsFast foodsSnacksFast foodsAcai BerryFruitsAcerolaFruitsAppleFruitsAvocadoFruitsBananaFruitsCashewFruitsCoconutFruitsEarl fruitFruitsFigFruitsGrapeFruitsGuavaFruitsJackfruitFruitsKiwiFruitsLemonFruitsMangoFruitsMelonFruitsOrangeFruitsOther fruitsFruitsPasayaFruitsPasayaFruitsPasaion fruitFruitsPeachFruitsPearFruitsPineappleFruitsPineappleFruitsPineappleFruitsStar fruitFruitsStar fruitFruitsStar fruitFruitsStar fruitFruitsMamerican taroLeafy vegetablesArugulaLeafy vegetables	Milk	Dairy
Egg         Eggs           Sauces and condiments         Fast foods           Snacks         Fast foods           Acai Berry         Fruits           Acerola         Fruits           Apple         Fruits           Avocado         Fruits           Banana         Fruits           Cashew         Fruits           Cashew         Fruits           Coconut         Fruits           Cupuaçu         Fruits           Earl fruit         Fruits           Fig         Fruits           Grape         Fruits           Grape         Fruits           Guava         Fruits           Jackfruit         Fruits           Khaki         Fruits           Kiwi         Fruits           Lemon         Fruits           Malon         Fruits           Melon         Fruits           Orange         Fruits           Other fruits         Fruits           Papaya         Fruits           Peach         Fruits           Pear         Fruits           Pear         Fruits           Plum         Fruits	Non-fat milk	Dairy
Sauces and condiments Snacks Fast foods Acai Berry Fruits Acerola Fruits Apple Fruits Avocado Fruits Banana Fruits Cashew Fruits Coconut Fruits Cupuaçu Fruits Frig Fruits Frig Fruits Grape Guava Fruits Khaki Fruits Kiwi Fruits Lemon Fruits Mango Fruits Melon Orange Other fruits Papaya Fruits Papaya Fruits Passion fruit Fruits Peach Pear Pineapple Fruits Piruits Piruits Piruits Piruits Piruits Piruits Piruits Piruits Piruits Peach Piruits Piru	Yogurt	Dairy
Sauces and condiments Snacks Fast foods Acai Berry Fruits Acerola Fruits Apple Fruits Avocado Fruits Banana Fruits Cashew Fruits Coconut Fruits Cupuaçu Fruits Frig Fruits Frig Fruits Grape Guava Fruits Khaki Fruits Kiwi Fruits Lemon Fruits Mango Fruits Melon Orange Other fruits Papaya Fruits Papaya Fruits Passion fruit Fruits Peach Pear Pineapple Fruits Piruits Piruits Piruits Piruits Piruits Piruits Piruits Piruits Piruits Peach Piruits Piru	Egg	Eggs
Acai Berry Acerola Fruits Apple Fruits Avocado Fruits Banana Fruits Cashew Fruits Coconut Cupuaçu Fruits Fruits Fruits Fig Fruits Grape Fruits Guava Fruits Jackfruit Fruits Kiwi Fruits Lemon Fruits Mango Fruits Melon Fruits Papaya Fruits Papaya Fruits Passion fruit Fruits Pasar Pineapple Fruits Pineapple Fruits Frui	= =	
Acerola Fruits Apple Fruits Avocado Fruits Banana Fruits Cashew Fruits Coconut Fruits Cupuaçu Fruits Earl fruit Fruits Fig Fruits Grape Fruits Guava Fruits Jackfruit Fruits Khaki Fruits Khaki Fruits Lemon Fruits Lemon Fruits Mango Fruits Melon Fruits Papaya Fruits Papaya Fruits Passion fruit Fruits Pasch Fruits Pasch Fruits Pasch Fruits Pineapple Fruits Pineapple Fruits Pinum Fruits Soursop Fruits Strawberry Fruits Strawberry Fruits Tangerine Fruits Watermelon Fruits Watermelon Fruits Tangerine Fruits Watermelon Fruits Margore Fruits Sursyman Fruits Pineapple Fruits Pineapple Fruits Pineapple Fruits Pineapple Fruits Pineapple Fruits Sursyman Fruits Pineapple Fr	Snacks	Fast foods
Apple Fruits Avocado Fruits Banana Fruits Cashew Fruits Coconut Fruits Cupuaçu Fruits Earl fruit Fruits Fig Fruits Grape Fruits Guava Fruits Guava Fruits Khaki Fruits Kiwi Fruits Lemon Fruits Mango Fruits Melon Fruits Orange Fruits Other fruits Fruits Papaya Fruits Papaya Fruits Papaya Fruits Papaya Fruits Passion fruit Fruits Peach Fruits Pineapple Fruits Pineapple Fruits Star fruit Fruits Star fruit Fruits Strawberry Fruits Strawberry Fruits Watermelon Fruits Watermelon Fruits Watermelon Fruits American taro Leafy vegetables Arugula Leafy vegetables	Acai Berry	Fruits
Apple Fruits Avocado Fruits Banana Fruits Cashew Fruits Coconut Fruits Cupuaçu Fruits Earl fruit Fruits Fig Fruits Grape Fruits Guava Fruits Guava Fruits Khaki Fruits Kiwi Fruits Lemon Fruits Mango Fruits Melon Fruits Orange Fruits Other fruits Fruits Papaya Fruits Papaya Fruits Papaya Fruits Papaya Fruits Passion fruit Fruits Peach Fruits Pineapple Fruits Pineapple Fruits Star fruit Fruits Star fruit Fruits Strawberry Fruits Strawberry Fruits Watermelon Fruits Watermelon Fruits Watermelon Fruits American taro Leafy vegetables Arugula Leafy vegetables	•	Fruits
Avocado Fruits Banana Fruits Cashew Fruits Coconut Fruits Cupuaçu Fruits Earl fruit Fruits Fig Fruits Grape Fruits Guava Fruits Jackfruit Fruits Khaki Fruits Kiwi Fruits Lemon Fruits Melon Fruits Molon Fruits Orange Fruits Other fruits Fruits Papaya Fruits Papaya Fruits Papaya Fruits Passion fruit Fruits Pear Fruits Pear Fruits Pium Fruits Strawberry Fruits Strawberry Fruits Watermelon Fruits Watermelon Fruits Watermelon Fruits Frui		
Banana Fruits Cashew Fruits Coconut Fruits Cupuaçu Fruits Earl fruit Fruits Fig Fruits Grape Fruits Guava Fruits Jackfruit Fruits Khaki Fruits Kiwi Fruits Lemon Fruits Mango Fruits Melon Fruits Orange Fruits Other fruits Fruits Fruits Fruits Fruits Fruits Fruits Other fruits Fruits Papaya Fruits Passion fruit Fruits Pear Fruits Pineapple Fruits Pineapple Fruits Star fruit Fruits Star fru		
Cashew Coconut Fruits Cupuaçu Fruits Earl fruit Frig Fruits Fig Fruits Grape Fruits Guava Fruits Jackfruit Fruits Khaki Fruits Khaki Fruits Lemon Fruits Mango Fruits Melon Fruits Other fruits Papaya Passion fruit Peach Passion fruit Fruits Pear Pineapple Fruits Pineapple Fruits Soursop Fruits Strawberry Fruits Watermelon American taro Arrugula Fruits		
Coconut Cupuaçu Fruits Earl fruit Frig Frig Fruits Grape Grape Grava Fruits Jackfruit Fruits Khaki Fruits Khaki Fruits Kiwi Fruits Lemon Fruits Mango Fruits Molon Fruits Orange Other fruits Fruits Fruits Fruits Fruits Papaya Fruits Passion fruit Fruits Peach Fruits Pear Fruits Pear Fruits Pineapple Fruits Pineapple Fruits Soursop Fruits Strawberry Fruits Watermelon Arugula Fruits Frui		
Cupuaçu Fruits Earl fruit Fruits Fig Fruits Grape Fruits Guava Fruits Jackfruit Fruits Khaki Fruits Kiwi Fruits Lemon Fruits Mango Fruits Melon Fruits Orange Fruits Other fruits Fruits Papaya Fruits Passion fruit Fruits Peach Fruits Pear Fruits Pineapple Fruits Pineapple Fruits Soursop Fruits Star fruit Fruits Star fruit Fruits Strawberry Fruits Watermelon Fruits Watermelon Fruits Arugula Fruits Fr		
Earl fruit Fig Fruits Grape Grape Fruits Guava Fruits Jackfruit Fruits Khaki Fruits Kiwi Fruits Lemon Fruits Mango Fruits Melon Fruits Other fruits Papaya Passion fruit Peach Pear Pineapple Fruits Pineapple Fruits Pineapple Fruits Soursop Fruits Star fruit Fruits Star fruit Fruits Fruits Star fruit Fruits Leafy vegetables Arugula Leafy vegetables		
Fig Fruits Grape Fruits Guava Fruits Jackfruit Fruits Khaki Fruits Kiwi Fruits Lemon Fruits Mango Fruits Melon Fruits Other fruits Fruits Papaya Fruits Passion fruit Fruits Peach Fruits Pear Fruits Pineapple Fruits Pineapple Fruits Pineapple Fruits Soursop Fruits Star fruit Fruits Star fruit Fruits Star fruit Fruits Tangerine Fruits Watermelon Fruits Mango Fruits		
Grape Guava Fruits Jackfruit Fruits Khaki Fruits Kiwi Fruits Lemon Fruits Mango Fruits Melon Orange Fruits Other fruits Papaya Passion fruit Peach Pear Fruits Pineapple Fruits Pineapple Fruits Soursop Fruits Star fruit Fruits Star fruit Fruits Fru		
Guava Fruits Jackfruit Fruits Khaki Fruits Kiwi Fruits Lemon Fruits Mango Fruits Melon Fruits Other fruits Fruits Papaya Fruits Passion fruit Fruits Peach Fruits Pear Fruits Pineapple Fruits Pineapple Fruits Soursop Fruits Star fruit Fruits Star fruit Fruits Star fruit Fruits Strawberry Fruits Watermelon Fruits Watermelon American taro Arugula  Fruits Fruit	_	
Jackfruit Khaki Fruits Kiwi Fruits Lemon Fruits Mango Fruits Melon Fruits Other fruits Papaya Fruits Passion fruit Peach Pear Fruits Pineapple Fruits Pineapple Fruits Soursop Star fruit Fruits Strawberry Tangerine Watermelon American taro Arugula Fruits	-	
Khaki Fruits Kiwi Fruits Lemon Fruits Mango Fruits Melon Fruits Other fruits Fruits Papaya Fruits Passion fruit Fruits Peach Fruits Pear Fruits Pineapple Fruits Plum Fruits Soursop Fruits Star fruit Fruits Star fruit Fruits Strawberry Fruits Watermelon Fruits American taro Arugula  Fruits		
Kiwi Fruits Lemon Fruits Mango Fruits Melon Fruits Other fruits Fruits Papaya Fruits Passion fruit Fruits Peach Fruits Pear Fruits Pineapple Fruits Plum Fruits Soursop Fruits Star fruit Fruits Star fruit Fruits Strawberry Fruits Watermelon Fruits American taro Arugula  Fruits		
Lemon Fruits Mango Fruits Melon Fruits Orange Fruits Other fruits Fruits Papaya Fruits Passion fruit Fruits Peach Fruits Pear Fruits Pineapple Fruits Plum Fruits Soursop Fruits Star fruit Fruits Star fruit Fruits Strawberry Fruits Tangerine Fruits Watermelon Fruits American taro Arugula  Fruits Fruits Fruits Fruits Leafy vegetables  Leafy vegetables		
MangoFruitsMelonFruitsOrangeFruitsOther fruitsFruitsPapayaFruitsPassion fruitFruitsPeachFruitsPearFruitsPineappleFruitsPlumFruitsSoursopFruitsStar fruitFruitsStrawberryFruitsTangerineFruitsWatermelonFruitsAmerican taroLeafy vegetablesArugulaLeafy vegetables		
Melon Fruits Orange Fruits Other fruits Fruits Papaya Fruits Passion fruit Fruits Peach Fruits Pear Fruits Pineapple Fruits Plum Fruits Soursop Fruits Star fruit Fruits Strawberry Fruits Tangerine Fruits Watermelon Fruits American taro Arugula Fruits Fruits Fruits Fruits Fruits Fuits Fui		
Orange Fruits Other fruits Papaya Fruits Passion fruit Peach Fruits Pear Fruits Pineapple Fruits Plum Fruits Soursop Fruits Star fruit Fruits Strawberry Fruits Tangerine Fruits Watermelon American taro Arugula Fruits	_	
Other fruits Papaya Passion fruit Peach Pear Pear Pineapple Plum Fruits Soursop Fruits Star fruit Strawberry Tangerine Watermelon American taro Arugula Fruits Leafy vegetables		
Papaya Fruits Passion fruit Fruits Peach Fruits Pear Fruits Pineapple Fruits Plum Fruits Soursop Fruits Star fruit Fruits Strawberry Fruits Tangerine Fruits Watermelon Fruits American taro Leafy vegetables Arugula Fruits Fruits Fruits Leafy vegetables		
Passion fruit Peach Pear Pear Pineapple Pineapple Plum Fruits Soursop Fruits Star fruit Strawberry Tangerine Watermelon American taro Arugula Fruits Leafy vegetables Leafy vegetables		
Peach Pear Pear Fruits Pineapple Fruits Plum Fruits Soursop Fruits Star fruit Fruits Fruits Strawberry Fruits Tangerine Watermelon American taro Arugula Fruits Fruits Leafy vegetables Leafy vegetables		
Pear Fruits Pineapple Fruits Plum Fruits Soursop Fruits Star fruit Fruits Strawberry Fruits Tangerine Fruits Watermelon Fruits American taro Leafy vegetables Arugula Fruits		
Pineapple Fruits Plum Fruits Soursop Fruits Star fruit Fruits Strawberry Fruits Tangerine Fruits Watermelon Fruits American taro Leafy vegetables Arugula Fruits		
Plum Fruits Soursop Fruits Star fruit Fruits Strawberry Fruits Tangerine Fruits Watermelon Fruits American taro Leafy vegetables Arugula Leafy vegetables		
Soursop Fruits Star fruit Fruits Strawberry Fruits Tangerine Fruits Watermelon Fruits American taro Leafy vegetables Arugula Leafy vegetables		
Star fruit Strawberry Fruits Tangerine Fruits Watermelon American taro Arugula Fruits Leafy vegetables Leafy vegetables		
Strawberry Fruits Tangerine Fruits Watermelon Fruits American taro Leafy vegetables Arugula Leafy vegetables	•	
Tangerine Fruits Watermelon Fruits American taro Leafy vegetables Arugula Leafy vegetables		
Watermelon Fruits American taro Leafy vegetables Arugula Leafy vegetables		
American taro  Leafy vegetables  Leafy vegetables		
Arugula Leafy vegetables		
Continues		Leafy vegetables
	Continues	

Table S3. Food groups for acceptability constraints on optimization models (continuation).

Foods	Constraint groups	
Cabbage	Leafy vegetables	
Chard	Leafy vegetables	
Chicory	Leafy vegetables	
Cress	Leafy vegetables	
Endive	Leafy vegetables	
Kale	Leafy vegetables	
Lettuce	Leafy vegetables	
Mustard Leaf	Leafy vegetables	
Serralha	Leafy vegetables	
Spinach	Leafy vegetables	
Margarine	Margarine	
Beef	Meats	
Chicken	Meats	
Fish	Meats	
Liver	Meats	
Other animal meats	Meats	
Pork	Meats	
Processed meat	Meats	
Seafood	Meats	
Non-Classified	Non-Classified	
Nuts	Nuts	
Peanut	Nuts	
Olive oil	Olive Oil	
Pasta	Pasta	
Rice	Rice	
Whole rice	Rice	
Sugar-sweetened beverages		
Sweets	Sugar-sweetened beverages (SSB) Sweets	
Manioc flour	Tubers	
Tubers	Tubers	
Yam	Tubers	
Beet	Vegetables	
	Vegetables	
Bell pepper	<u> </u>	
Broccoli Carrot	Vegetables Vegetables	
Carlot Cauliflower	<u> </u>	
	Vegetables	
Chayote	Vegetables	
Corn Cucumber	Vegetables	
	Vegetables	
Eggplant	Vegetables	
Gherkin	Vegetables	
Milkweed	Vegetables	
Okra	Vegetables	
Onion	Vegetables	
Palm Heart	Vegetables	
Peas	Vegetables	
Pequi or Souari nut	Vegetables	
Continues		

**Table S3.** Food groups for acceptability constraints on optimization models (continuation).

Foods	Constraint groups	
Pods	Vegetables	
Pumpkin	Vegetables	
Radish	Vegetables	
Scarlet eggplant	Vegetables	
Tomato	Vegetables	
Zucchini	Vegetables	

**Table S4.** Summary of residue data obtained from the Program on Pesticide Residue Analysis in Food (PARA) from 2013 to 2018, and LabTox from 2010 to 2012.

	Samples	Positive samples	% of positive
Food	analyzed	(≥LOD)	samples
Apple	764	712	93
Strawberry	157	146	93
Papaya	722	590	82
Khaki	67	51	76
Tomato	1046	656	63
Beans	764	434	57
Orange	1126	557	49
Bell pepper	569	264	46
Corn	729	332	46
Kale	228	97	43
Wheat	506	212	42
Carrot	871	327	38
Lettuce	734	254	35
Grape	543	185	34
Cucumber	487	161	33
Cashew	43	12	28
Pineapple	587	135	23
Zucchini	216	48	22
Cabbage	491	100	20
Banana	501	99	20
Guava	689	125	18
Rice	1075	194	18
Mango	569	94	17
Beetroot	618	83	13
Onion	495	48	10
Potatoes	742	51	7
Garlic	365	19	5
Sweet Potatoes	315	13	4
Chayote	288	9	3
Manioc	470	14	3
Total	16667	6022	36