



Minnesota Institute for Sustainable Agriculture (MISA)

How many people can be present
in a farmers' market space and
still maintain 6' distancing?

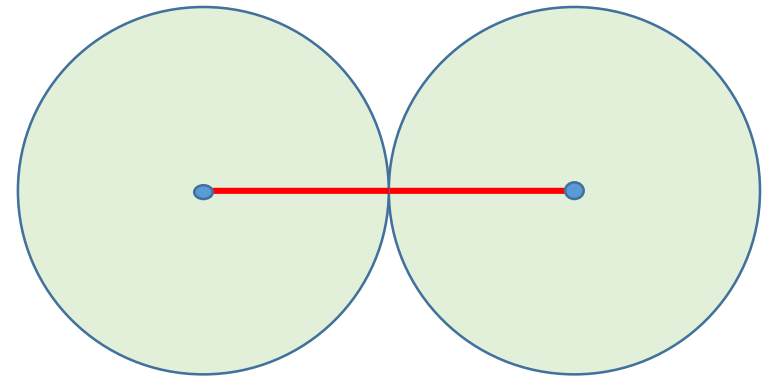
Think about a circle of distance around each person that keeps people 6 ft apart from each other.

Normally when doing math involving circles, the point at the center of the circle is assumed to take up zero physical space.

When we're thinking about circles of distance around humans, though, that human at the center of the circle does take up physical space.

Radius = distance from center of circle to outer edge of circle

Center of circle = person



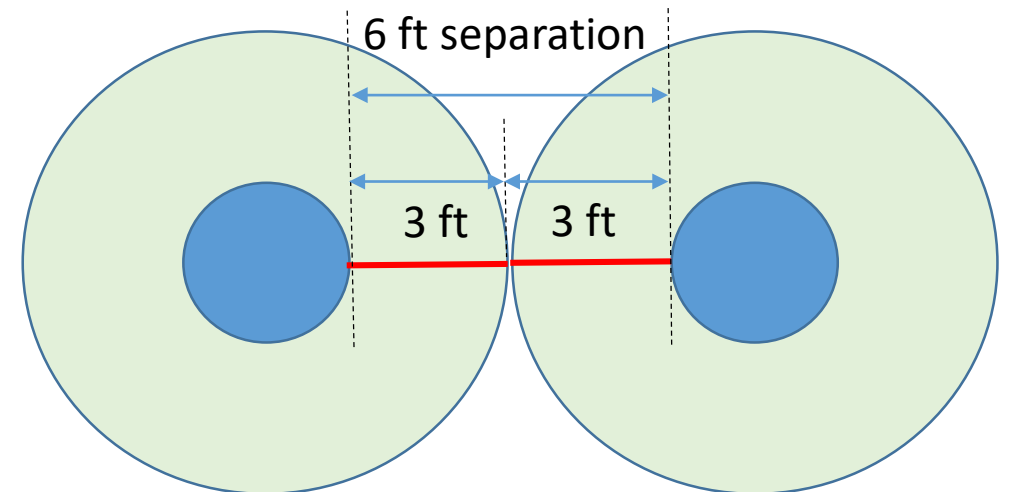
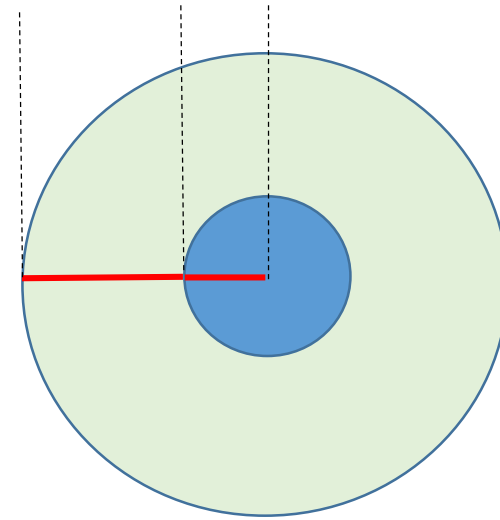
The circle of distance for each human must account for BOTH:

- The space taken up by the human; and
- The radius of distance to accomplish 6 ft between humans

We suggest a 4.5 ft radius to the circle.

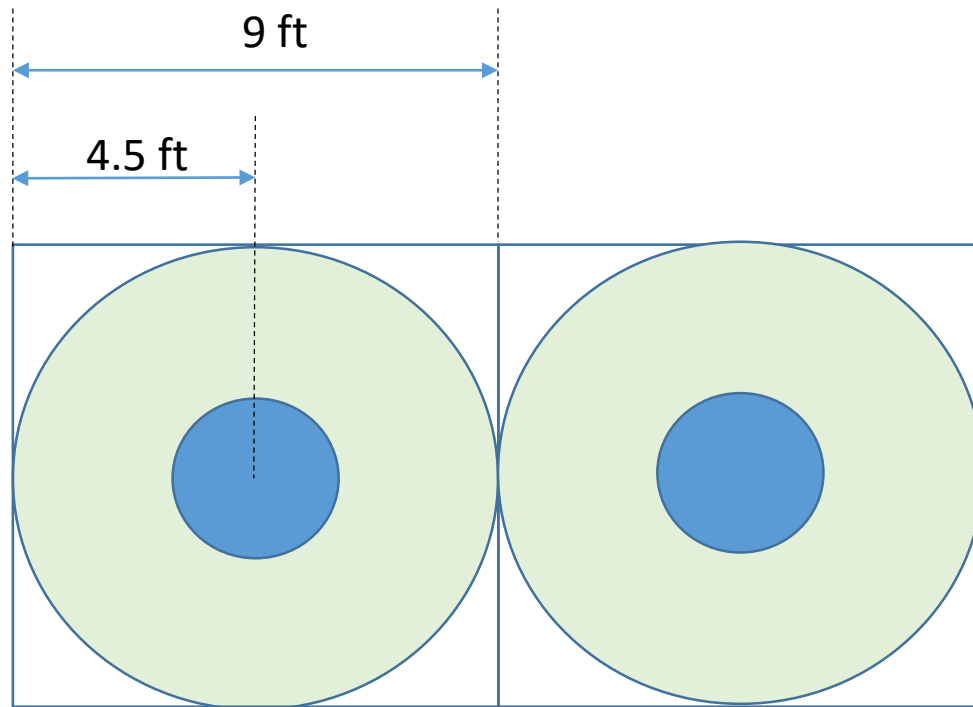
- This allows 1.5 ft of radius, or 3 ft of diameter, to be occupied by the person in the center of the circle.
- The 3 ft radius of separation is tacked on to the 1.5 ft of radius occupied by the human.

$$3 \text{ ft} + 1.5 \text{ ft} = 4.5 \text{ ft radius}$$



BUT, circles don't pack together perfectly in a space. There's empty space where they come together, and that needs to be accounted for.

If we have circles with 4.5 ft radius, which means they have 9 ft diameters, those circles have to be envisioned as sitting within squares that are 9 ft on a side.



That means the area calculation should be done on the squares:

$$9 \text{ ft} \times 9 \text{ ft} = 81 \text{ ft}^2$$

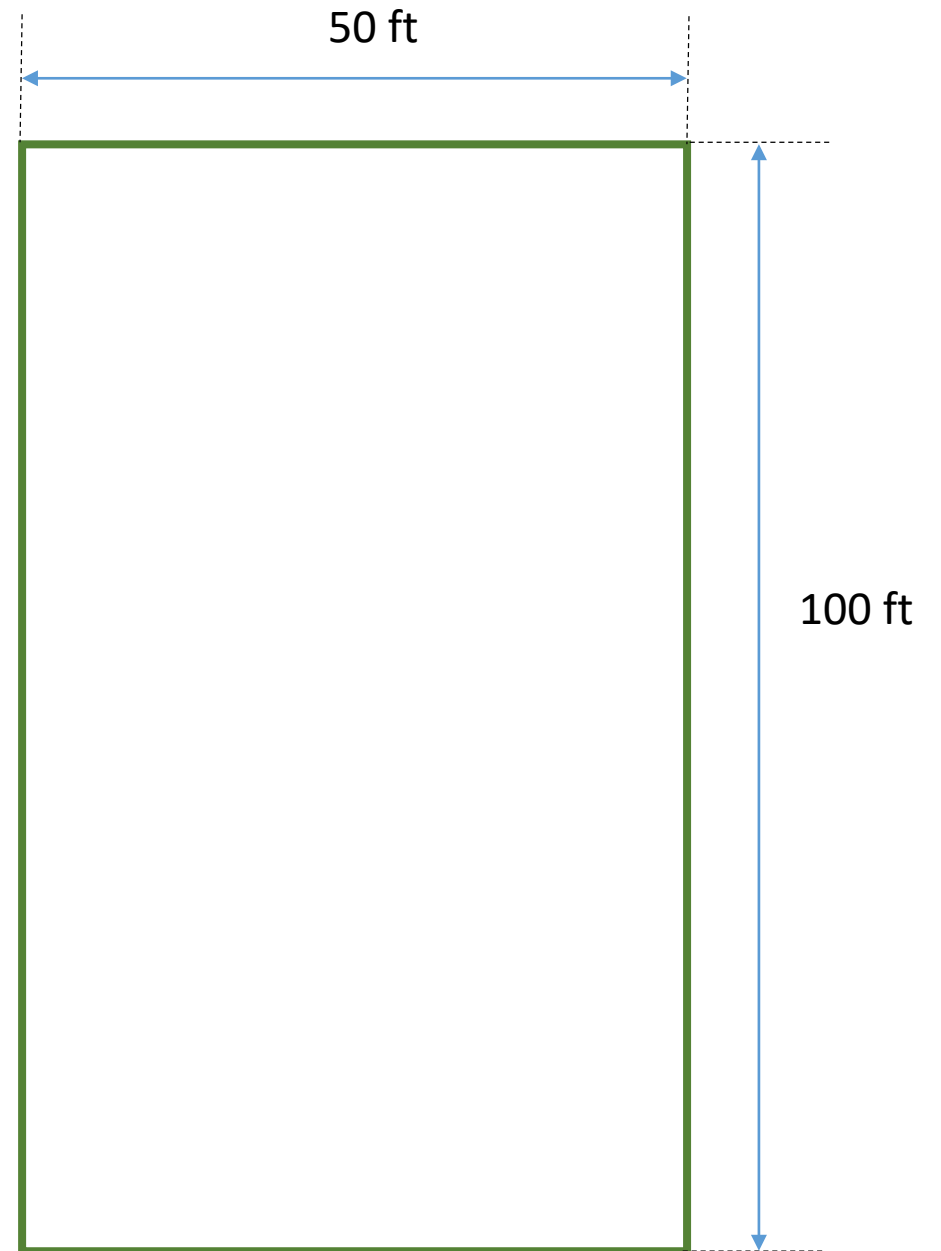
The market's area in square feet that is available to customers should be divided by 81 to get the number of people allowed in at any one time.

How much market space is available to customers, and how many customers can be in that space?

Example 1:

In this example, the market is 50 ft wide and 100 ft long.

Total area = 50 ft x 100 ft = 5,000 ft²



Total market area = 5,000 ft², but some of that space is used by vendors.

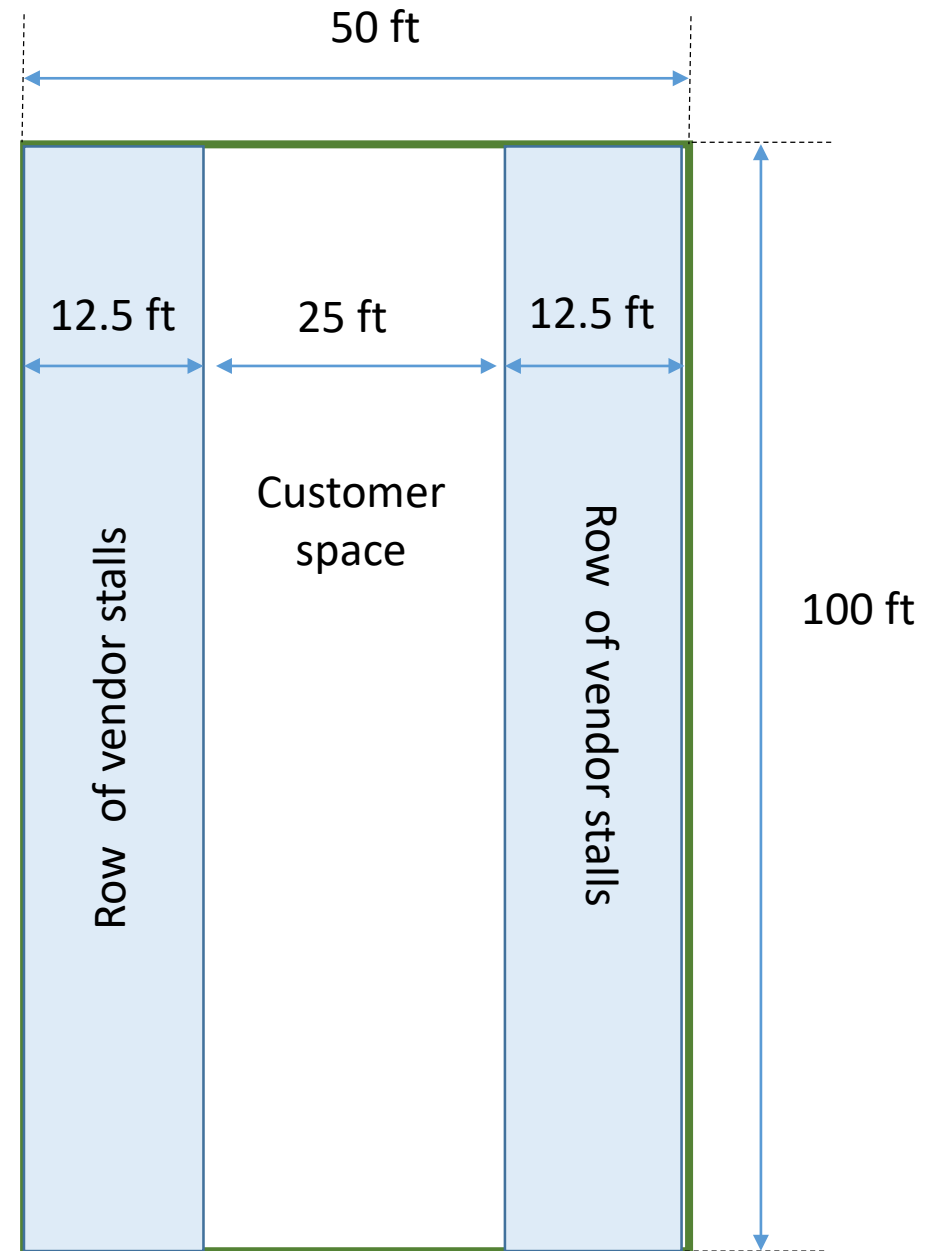
In this example, there is a row of vendor stalls on either side of the market. The space available for customers to walk is 25 ft wide and 100 ft long.

Area available to customers:

$$25 \text{ ft} \times 100 \text{ ft} = 2,500 \text{ ft}^2$$

Customers allowed in this market at one time: $2,500 \text{ ft}^2 / 81 \text{ ft}^2$ per customer = 30.86

Round down to the nearest whole number. 30 customers at a time can be allowed into this market space.

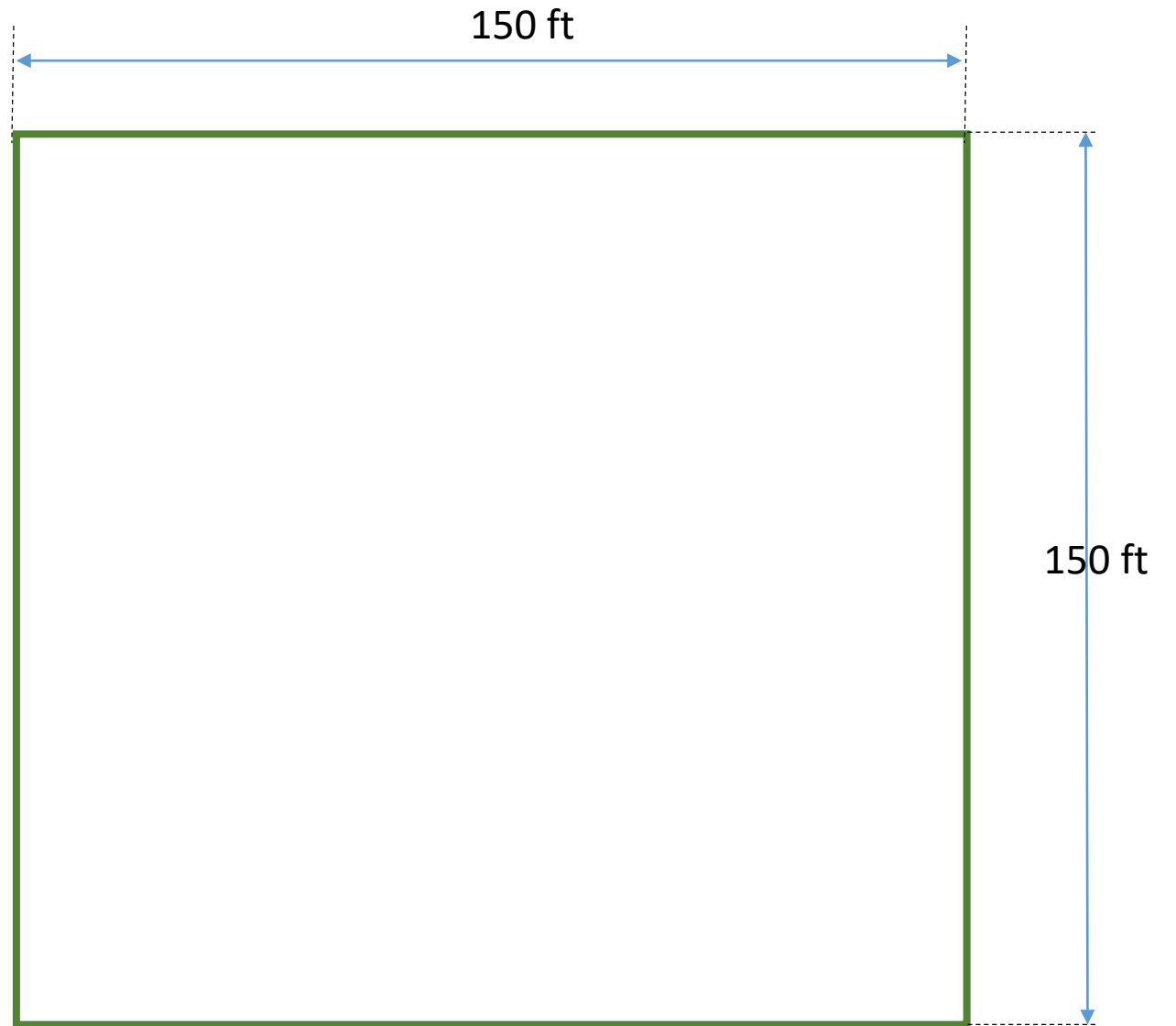


How much market space is available to customers, and how many customers can be in that space?

Example 2:

In this example, the market is a square, 150 ft per side.

Total area = $150 \text{ ft} \times 150 \text{ ft} = 22,500 \text{ ft}^2$



In this example, vendor stalls are set up on three sides of the market and there is a block of stalls in the center.

Calculate all of the area taken up by vendors and subtract that from the total area to figure out the space available to customers.

Vendor block A: $12.5 \text{ ft} \times 150 \text{ ft} = 1,875 \text{ ft}^2$

Vendor block B: $12.5 \text{ ft} \times 125 \text{ ft} = 1,562.5 \text{ ft}^2$

Vendor block C: $12.5 \text{ ft} \times 150 \text{ ft} = 1,875 \text{ ft}^2$

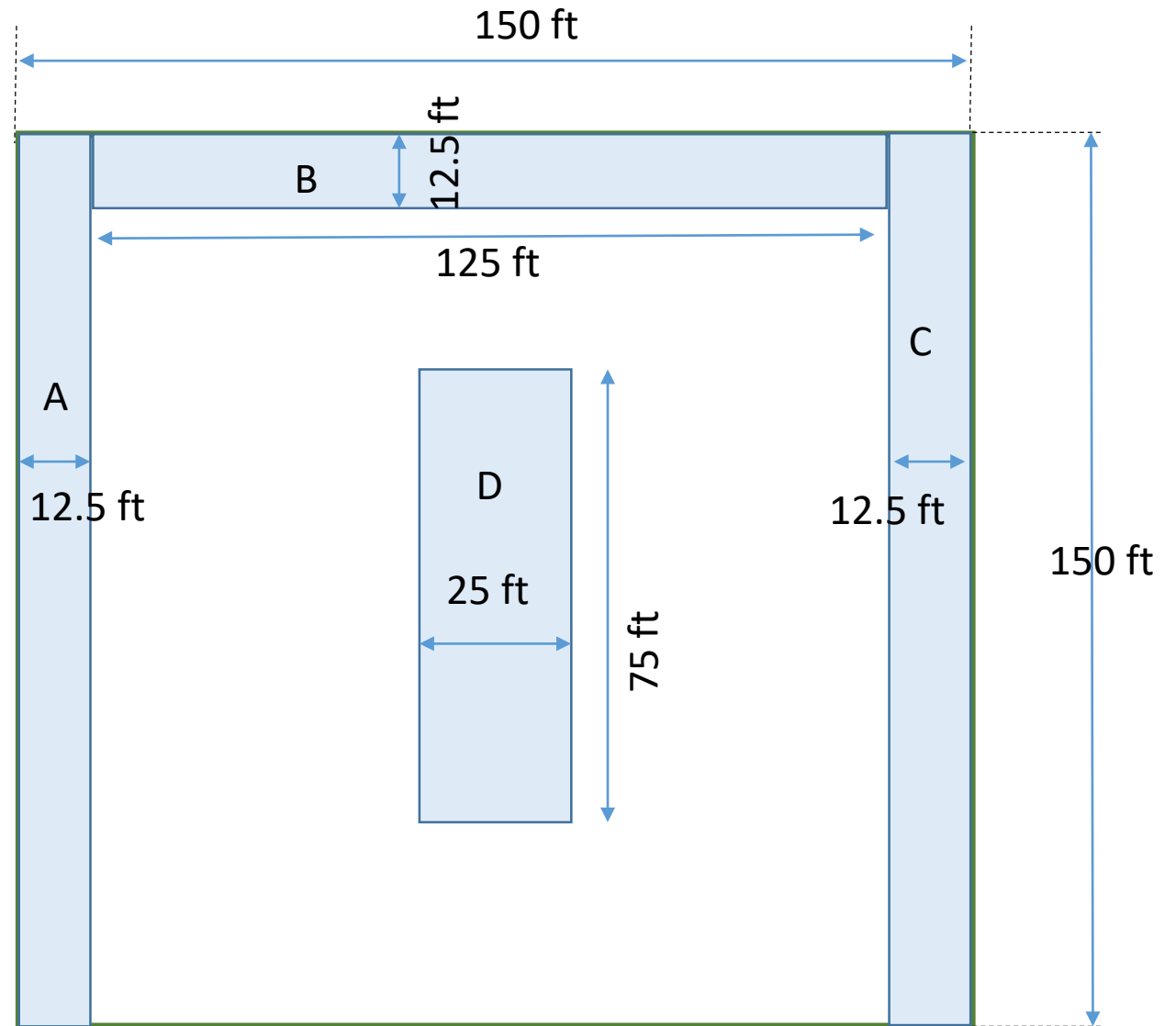
Vendor block D: $25 \text{ ft} \times 75 \text{ ft} = 1,875 \text{ ft}^2$

Total vendor blocks: $7,187.5 \text{ ft}^2$

Customer area:

$22,500 \text{ ft}^2 - 7,187.5 \text{ ft}^2 = 15,312.5 \text{ ft}^2$

Customers allowed at one time in this market: $15,312.5 \text{ ft}^2 / 81 \text{ ft}^2 = 189$





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Minnesota Institute for Sustainable Agriculture (MISA)

Connecting farmers, the university,
and the community to promote
sustainable agriculture

A partnership of CFANS, U of MN Extension, Sustainers' Coalition

For guidance on best practices for MN farmers' markets during this COVID-19 pandemic, go to www.mfma.org.

April 20, 2020