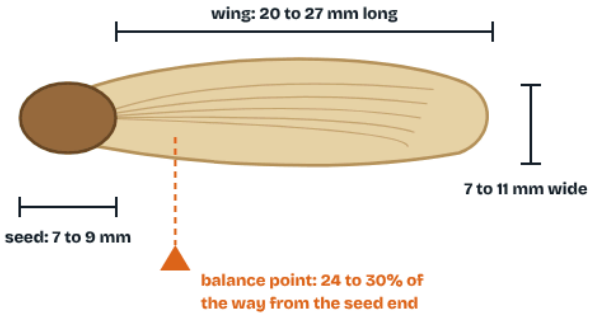
That is why

Why do maple seeds spin?

A heavy seed gives a one-sided wing a pivot; falling air spins it, and a swirl on its front edge doubles the lift.

A Anatomy of a samara

One sugar maple samara (enlarged)



So the wing pivots right next to the heavy seed.

Grown in pairs, flown alone

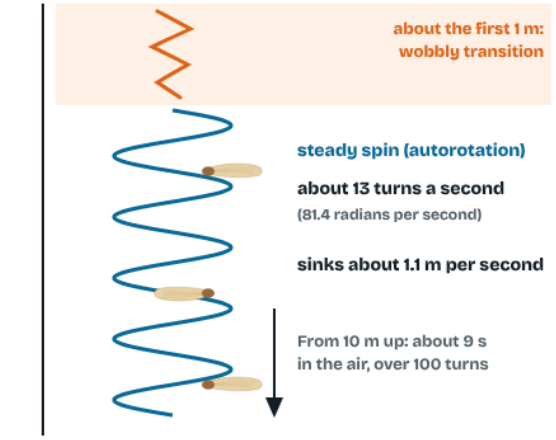


Maple fruits grow in pairs, but in sugar maples usually only one of the pair holds a seed. Seeds usually start falling just before the leaves.

Spin and fall data in panel B: Norway maple.

B From tumble to spin

A seed dropped in still air (side view)



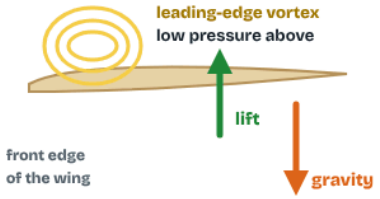
Not to scale.

1 Why slow matters

Every second in the air is time for the wind to push the seed sideways. Sugar maple samaras ride the wind at least 100 m, and in field drops real seeds outflew 3D copies.

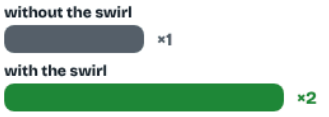
C The front-edge tornado

Slice through the spinning wing



The swirl sucks the wing upward.

Lift



How it was seen

Models 5 to 10 times bigger, spun by a robot in mineral oil; a laser lit tiny glass beads. Smoke on 32 real seeds in a wind tunnel showed the same swirl. Insects, bats and hummingbirds use it too.

Like a helicopter with its engine off, the seed is spun by the air it falls through.

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Diagram: https://thatiswhy.com/diagrams/why-maple-seeds-spin/ · Full guide: /why-maple-seeds-spin-like-helicopters/