How We Calculate the Biblical Calendar

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https://119assistant.ai/resources/biblical-calendar/how-we-calculate

This page summarizes the calculation method documented by 119 Ministries. The method begins with the patterns described in Genesis 1 and uses the sun, moon, and stars as timekeeping signs for days, months, years, and YHWH's appointed times.

The foundational pattern

The 119 Ministries method understands biblical time as beginning in darkness. Days are observed evening to evening, as darkness enters. A new lunar month begins with the dark moon at conjunction.

The sun marks days, the moon marks months, and the annual pattern of the heavens helps establish the year. Jerusalem is used as the reference point for establishing biblical days and months.

The homepage labels its approximation as Estimated nightfall. It uses the evening end of nautical twilight, when the geometric center of the sun is 12 degrees below the horizon. Local conditions may differ. Jerusalem remains the reference for reviewed month and year anchors. Morning light is estimated when the rising geometric solar center reaches 12 degrees below the horizon. A conjunction after that morning point belongs to the coming evening.

Establishing the first biblical month

We determine the first biblical month by selecting the first lunar month whose Passover sacrifice, on the 14th day, falls after the spring equinox. This combines the lunar cycle used for months with the solar season used to keep the spring appointed times in their intended season. The first day of that month may occur before the spring equinox; the timing of the fourteenth-day Passover sacrifice determines which lunar month is the earliest qualifying first month.

1. Determine the actual spring equinox instant in Jerusalem.
2. Consider lunar months in chronological order, beginning each with its lunar conjunction.
3. If the conjunction occurs during daylight in Jerusalem, the coming evening begins the first day of that candidate month. If it occurs at night, the first day is the biblical day that already began that evening, including when the conjunction falls after civil midnight.
4. Count to the daylight portion of day 14 and compare the appointed sacrifice timing in Jerusalem with the equinox instant. Select the first lunar month whose Passover sacrifice falls after that instant.

The comparison concerns the appointed sacrifice on day 14. The opening night of day 14, the beginning of a Gregorian date, and the meal on day 15 are separate boundaries. The precise sacrificial window remains unresolved for close cases; if the equinox falls within that window, the result requires further timing review.

For 2026, the March 19 conjunction occurs at 3:23 a.m. Jerusalem time (01:23 Universal Time), according to the U.S. Naval Observatory. It falls during the night that began March 18. Month one therefore begins at nightfall on March 18, not the following evening. Counting evening to evening places day 14 on March 31 evening through April 1 evening, and days 15 through 21 on April 1 evening through April 8 evening.

Calculating the spring mo’edim

1. Determine the actual spring equinox instant in Jerusalem.
2. Consider lunar months in chronological order. If a conjunction occurs during daylight in Jerusalem, begin that candidate month that coming evening. If it occurs at night, use the biblical day already begun that evening.
3. Count evening-to-evening days to the daylight portion of the 14th day of each candidate month for Passover.
4. Select the first lunar month whose Passover sacrifice, during the daylight portion of the 14th day in Jerusalem, falls after the spring equinox. Disclose any unresolved precision in a close boundary case.
5. Observe the Feast of Unleavened Bread from the 15th through the 21st day of the first month.
6. Identify the weekly Sabbath during Unleavened Bread. The following day is Firstfruits.
7. Count Firstfruits as day one of fifty days. Shavuot follows the seventh Sabbath, 49 elapsed days after Firstfruits.

Calculating the fall mo’edim

1. Count forward from the first biblical month to the seventh lunar conjunction.
2. The first night and day of the seventh month is Yom Teruah (Day of Trumpets).
3. The 10th night and day of the seventh month is Yom Kippur (Day of Atonement).
4. The 15th through the 21st days of the seventh month are Sukkot (Feast of Tabernacles).
5. The 22nd day of the seventh month is the Last Great Day.

Sukkot falling on or after the autumn equinox is a general pattern, not a separate requirement for adding a month. The seventh-month observances follow from the established beginning of the year. In 2027, the entire eight-day festival period, including the Eighth Day, concludes before the autumn equinox. This extremely rare alignment does not change the calculation.

Why are the 2027 fall dates early?

We determine the first biblical month by selecting the first lunar month whose Passover sacrifice, on the fourteenth day, falls after the spring equinox. We apply this understanding through our Jerusalem conjunction method.

Importantly, the first day of the first biblical month does not itself have to fall after the spring equinox. It is the timing of the Passover sacrifice on the fourteenth day that determines whether the lunar month qualifies as the first month of the biblical year.

Our aim is to follow Yeshua's example in observing YHWH's appointed times. This makes evidence from the first century especially valuable.

Philo connects the first biblical month and its festival with the spring equinox (*The Special Laws* 2.150–152). Josephus provides additional specificity, explaining that the Passover sacrifice occurred on the fourteenth day of the lunar month when the sun was in Aries, meaning after the spring equinox (*Antiquities* 3.248).

We understand these historical witnesses together as supporting the spring equinox principle used in our calendar. These sources provide historical support for our interpretation, although they do not document every detail of our present calculation method.

However, an important distinction concerns the autumn appointed times.

In Exodus 23:16 and Exodus 34:22, the Torah associates the Feast of Ingathering with the going out or turning of the year. Exodus 34:22 uses the Hebrew expression *tequfat ha-shanah*, referring to the turning or completion of the yearly cycle.

This language associates the festival with the seasonal turning of the year, but does not establish an absolute requirement that Sukkot must begin on or after the precise astronomical moment of the autumn equinox.

Philo makes a similar seasonal association. In *The Special Laws* 2.204, he describes Sukkot as occurring in the season of the autumnal equinox. He does not explicitly require that the festival begin on or after the exact astronomical moment of the equinox.

This distinction is especially important when we consider Philo's statements about the spring and autumn equinoxes together.

If the spring equinox determines which lunar month begins the biblical year, then the autumn equinox cannot simultaneously function as a second, independent requirement for adding another month.

Otherwise, we could find ourselves postponing the biblical year by an additional lunar month even though the spring requirement had already been satisfied.

We therefore understand Philo's autumn description as identifying the general seasonal setting of Sukkot, rather than establishing an additional calendar rule.

Generally speaking, Sukkot occurs on or after the autumn equinox. However, because lunar months and solar seasons do not align perfectly, exceptions can occasionally occur.

The year 2027 illustrates this distinction in an especially unusual way.

Using our calendar's Jerusalem reference, the relevant dates are:

- **Spring equinox:** March 20, 2027, at 20:25 UTC.
- **Passover:** evening March 21 to evening March 22.
- **Yom Teruah:** evening August 31 to evening September 1.
- **Sukkot:** evening September 14 to evening September 21.
- **Eighth Day:** evening September 21 to evening September 22.
- **Autumn equinox:** September 23, 2027, at 06:02 UTC.

Under our calculation, Passover occurs after the spring equinox. Therefore, the condition for establishing the first biblical month has been satisfied.

The seventh-month appointed times then follow from that established beginning of the biblical year.

What makes 2027 particularly unusual is that not only does Sukkot begin before the autumn equinox, but the entire eight-day festival period concludes before it. Even the Eighth Day ends less than a day before the autumn equinox.

This is an extremely rare alignment under our calendar method, but it does not independently require adding another lunar month.

Adding another month solely to move Sukkot after the autumn equinox would introduce an additional requirement that we do not find explicitly established in Scripture or Philo's description.

Our earlier teaching stated that Sukkot must occur on or after the autumn equinox. Upon further examination, we recognize that this was more restrictive than the biblical and historical evidence requires.

We had treated a general seasonal pattern as though it were an absolute astronomical requirement.

We are correcting that explanation accordingly.

Our understanding is that the spring equinox establishes the basis for determining the first biblical month, while the autumn equinox describes the general seasonal setting of the Feast of Ingathering.

The spring equinox is the determining boundary for the biblical year. The autumn equinox is not a second, independent cutoff for adding an additional month.

This understanding allows us to apply the spring principle consistently while recognizing that the seasonal language concerning Sukkot does not require a particular astronomical moment to fall within the festival.

Our goal is to follow Scripture and the historical evidence as accurately as possible, without imposing requirements more precise than those sources establish.

Sources

- Exodus 34:22, World English Bible. The WEB renders the seasonal expression “at the year’s end.”
- Exodus 34:22, NET translation note. The note explains “the turn of the year” as the end of the agricultural season.
- Josephus, Antiquities of the Jews 3.248–249, translated by William Whiston. Section 248 places Passover on lunar day fourteen when the sun is in Aries.
- Philo, The Special Laws II, translated by C. D. Yonge. Sections 150–152 connect the first biblical month and its festival with spring and the vernal equinox; section 204 describes Sukkot in the season of the autumnal equinox.
- U.S. Naval Observatory, Earth’s Seasons for 2027. Lists the March equinox on March 20 at 20:25 Universal Time and the September equinox on September 23 at 06:02 Universal Time.

From Jerusalem to your city

Our calendar uses Jerusalem as its date line. Each biblical day proceeds westward from there and begins at the selected city’s estimated nightfall. A city’s Gregorian evening date can therefore differ from the Jerusalem reference date. Changing the city recalculates the date and upcoming observances together.

The date stays the same through civil midnight and morning light. It changes at the next qualifying nightfall. If that boundary cannot be calculated, the local biblical date is unavailable and you can choose a Jerusalem reference.

Calculating Hanukkah and Purim

We calculate these biblically referenced traditions from the same reviewed month anchors, using evening-to-evening days and Jerusalem as the reference point.

- Hanukkah begins at the evening starting the 25th day of the ninth month and lasts eight days.
- Purim covers the 14th and 15th days of the twelfth month. We retain month 12 even when a biblical cycle contains a thirteenth month.

Hanukkah and Purim appear separately from YHWH's appointed times and annual rest days. Second-month observances remain under ministry review.

Why the dates are evening to evening

The calculation document consistently treats biblical days as evening to evening. That is why the calendar may show an observance as beginning on the evening before the civil calendar date most people associate with the daytime portion of the observance.