

Kilayim

כְּלָאִים

Arugot Boxes

Overview

NOTE – The *Use Your Goof* lesson leads into this lesson very well. Participants transplant a written page of Talmud into the soil by creating raised-bed *arugot* – patches that demonstrate *Mishnah Kilayim* 3:1. This *mishnah* explains how many different crops may be grown in one *arugah* – patch without creating forbidden mixtures, known as *kilayim*.

Definitions

- *Mishnah* – compilation of written rabbinic law
- *Kilayim* – forbidden mixtures
- *Goof* – body
- *Amah* – Hebrew unit measuring distance, translated as “cubit”; length from elbow to fingertips
- *Tefach* – Hebrew unit measuring distance, translated as “handbreadth”; width of fist
- *Arugah* – Hebrew unit measuring area, translated as “patch” – one *amah* long by one *amah* wide

Primary Sources – Vayikra (Leviticus) 19:19

יט אֶת-חֻקֹּתַי, תִּשְׁמְרוּ--בְּהִמְתָּד לֹא-תִרְבִּיעַ כְּלָאִים, שָׂדֶךְ לֹא-תִזְרַע כְּלָאִים; וּבְגָד כְּלָאִים שְׁעֵטָנֹו, לֹא יַעֲלֶה עֲלֶיךָ. mixed together.

Kilayim Mishnah 3:1

A patch of six handbreadths by six handbreadths may be sown with five varieties– four on the four sides of the patch, and one in the middle. If it has a border one handbreadth high, it may be sown with thirteen – three on each border, and one in the middle. One may not plant turnip-heads in the border because it would fill it up. Rabbi Yehudah says, six in the middle.

מסכת כלאים פרק ג

ג,א ערוגה שהיא שישה על שישה טפחים, זורעין בתוכה חמישה זירעונים--ארבעה בארבע רוחות ערוגה, ואחד באמצע. היה לה גבול טפח, זורעין בתוכה שלושה עשר--שלושה על כל גבול וגבול, ואחד באמצע; לא ייטע ראש הלפת בתוך הגבול, מפני שהוא ממלאהו. רבי יהודה אומר, שישה באמצע

Goals

- Using the *Mishnah*, transplant Judaism from the written page into the living soil
- Plant according to the laws of *kilayim* in a small-scale garden
- Understand the basic concept of *kilayim* and how the rabbis interpreted it
- Construct *arugot* boxes that can be used for other activities

Logistics

Audience: Adaptable for 5th grade and up

Setting: Farm or garden

Number of Participants: 6-20

Timing: *Preparation* - 30 minutes, *Implementation* - 60 minutes, *Clean-up* - 10 minutes

Materials:

- Text – *Mishnah kilayim* 3:1, with planting diagram-commentaries
- 3 pieces of 2" x 8" x 10' wood
- Circular saw
- Screwdriver and wood screws
- Hammer and nails
- String
- Brown, non-waxy cardboard
- Soil and compost
- Seeds or transplants

Core Competencies - Participants will be able to:

- Construct an *arugah* – patch box for planting seeds and transplanting small/young plants
- Explain the basic principle of *kilayim*
- Plant according to the laws of *kilayim* in a small-scale garden

Core Concepts - Participants will know:

- That the *Torah* prohibits freely mixing different crops together when planting
- *Mishnah Kilayim* 3:1 applies this principle to small-scale gardening
- There are many rabbinic planting schemes in this *mishnah*, exploring how to grow different crops together in one *arugah* – patcha without creating *kilayim*, forbidden mixtures

Lesson Outline

Trigger

- Suggestion: Teach the *Use Your Goof* lesson as a lead-in to this lesson
 - Who has ever heard of a Jewish farmer? How about a Farmer's Almanac? What's a farmer's almanac? A farmers almanac gives advice to farmers on lots of things. Did you know that we have a Jewish Farmer's Almanac? You might know it by a different name: the *Torah*!
 - Is the *Torah* really a Jewish Farmer's Almanac? What does the *Torah* say about agriculture?
 - One of the Jewish agricultural laws from the *Torah* is called *kilayim*. Everyone say *kilayim*! Who likes *kilayim* (key-lime) pie?
 - *Kilayim* is not really a pie, it's a farming law in the *Torah*. Who wants to read this verse from the *Torah*?
- לא- 19 יט את-תקתי,תשמרו-בהמתך לא-
 ;תזרע פלאים, שדה לא-תזרע פלאים;
 וּבְגָד פְּלָאִים שֶׁעֲשָׂנוּ, לא יעלה עליה
 kinds of seed (*kilayim*); and you shall not wear
 clothes with two kinds of material mixed together.
- Does this *Torah* verse seem to agree or disagree with our ideas about organic gardening and sustainable agriculture? Upon their first encounter with *kilayim*, many people react with skepticism. Does the *Torah* promote unsustainable monocultures and prohibit the vibrancy of polyculture and diversity that today's organic food/farming/permaculture movement holds so dear?

Introduction to Arugot Boxes (5 minutes)

INTRODUCE

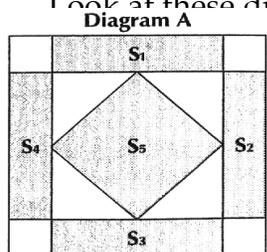
- Let's begin to answer these questions by getting into the details. How do we apply this *Torah* verse about *kilayim* to a real garden? Let's ask the rabbis – who wants to read?

Kilayim Mishnah 3:1 :

“A patch of six handbreadths by six handbreadths may be sown with five varieties- four on the four sides of the patch, and one in the middle. If it has a border one handbreadth high, it may be sown with thirteen - three on each border, and one in the middle. One may not plant turnip-heads in the border because it would fill it up. Rabbi Yehudah says, six in the middle.”

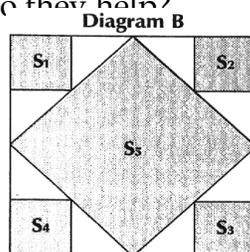
- Ask confusedly: What the heck is going on here? What's the *Mishnah*? (encyclopedia of rabbinic law) What's an *arugah*? (a small patch) What's an *amah*? (length of elbow to fingertips) **See Use Your Goof! Lesson.** What are these rabbis talking about???

- Look at these diagrams. Do they help?



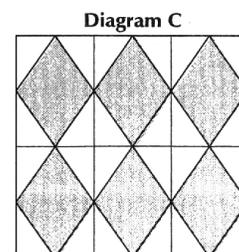
Total planted area:
24 square handbreadths

1/2 1 1/2 2 3 1/2 4 5 1/2 6
handbreadths



Total planted area:
27 square handbreadths

S1...n=species one, species two, etc.



Each planted area:
3 square handbreadths
Total planted area:
18 square handbreadths

- Welcome group to the *arugot* – patches area of the garden
- *Mishnah kilayim* 3:1, a rabbinic agricultural law, teaches us how to plant crops in a small garden without creating kilayim, forbidden mixtures. Rabbis interpreting this *mishnah* offer many different ideas on how to plant different crops in one *arugah* (one square *amah*) without creating *kilayim*.
- At Kayam Farm, we plant five *arugot* boxes demonstrating rabbinic interpretations of this *mishnaic* law, but there are actually 13 different rabbinic planting interpretations of this law, each with its own diagram! We plant the five simplest interpretations/diagrams, but they can get pretty complex. Each of these *arugot* boxes are based on a different interpretation of the *mishnah kilayim* 3:1.

Arugot Box Construction (45 minutes)

BUILD – The facilitator should have experience with a circular saw and power-drill for this part of the lesson. You can build the *arugot* boxes beforehand and skip this BUILD section.

- Let's 'transplant' these rabbinic interpretations of the *mishnah* from the page into the soil! We can build wooden *arugah* boxes, measuring one *amah* by one *amah*. But wait a second, everyone hold up your arm to look at your *amah* – the distance from your elbow to your fingertips. Are they all the same size? NO! So whose *amah* should we use? YOURS!! (See *Use Your Goof! Lesson*). Use your *amah* to measure – each piece should be one *amah* long. In order to create five *arugot* boxes, you need 20 pieces total, each one *amah* long. Only responsible adults with building experience should use the saw. After cutting your *amah*-length pieces of wood, screw them together in the shape of a square.

LOCATE

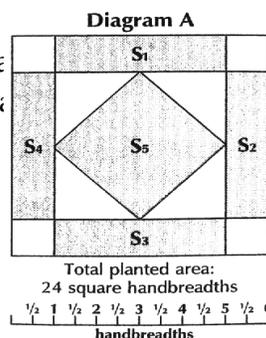
- Locate the boxes in an open area where groups can gather beside each *arugah* box to study each rabbinic interpretation-diagram planting scheme. Create a row of *arugot* boxes, a semi-circle, or some other arrangement that shows the progression from one interpretation to another. You can change the location of the boxes from season to season.

SHEET MULCH

- Once you locate your *arugot* – boxes, lay two layers of brown, non-waxy cardboard down beneath each box, completely covering the grass/plants growing within the *arugah* as well as a few inches around the outside of the box. Covering a larger area with the cardboard will provide greater weed control. Use lots of cardboard! After laying down cardboard, place each *arugot* frame centered on top of the cardboard. Fill each frame with half soil, half compost.

FOCUS

- Study the rabbinic diagram *arugot* configuration within your *arugah* box. If you want to create the same geometric example, look at this diagram:



CREATIVE CHALLENGE

- One way to re-create the rabbinic diagrams is to hammer nails partway into the top of the frame, and then run strings between the nails. Use the string to create the same shapes as in the diagrams – triangles, squares, diamonds, etc.
- It is challenging to locate the nails and string correctly in order to create the right shapes. Patience. A different number of nails is required for each *arugah*–box interpretation diagram, depending on the shape being created. The pictures below demonstrate an example of *arugot* boxes with strings attached, both before and after planting.
- You can see in the picture below that our boxes roughly reflect the diagrams from the *mishnah*. It doesn't have to be perfect!



PLANT

- Now that we have created our own *arugah* boxes, let's plant in them! Use the diagrams in the appendix to determine the correct planting location for each variety within in each diagram. Some diagrams have five varieties, some have more. Leafy greens and herbs are ideal plants for these *arugot* – lettuce, kale, chard, spinach, collards, cilantro, basil, etc.
- Here is one example of a freshly planted *arugah* box:



Conclusion (10 mintues)

DISCUSSION QUESTIONS

- Our newly transplanted vegetables and herbs appear clearly distinct from each other within these rabbinic *arugot* planting schemes. What do you think these *arugot* will look like when these plants grow to maturity? In the past, they often grow to be tangled and chaotic-looking. Why is that allowed? Shouldn't *kilayim* prevent this tangled appearance? Apparently *kilayim* applies only at the time of planting, so intermixing later on is fine. Why?
- Most rabbinic *kilayim* laws address a larger scale – fields of different grains or vineyards with other crops nearby. Why do the rabbis create laws and planting schemes for this small-scale *arugot* garden? Perhaps these are implications and applications for urban gardening, rooftops, and/or courtyards.
- Many people react to *kilayim* with skepticism, thinking that the *Torah* prohibits us from farming a diversity of crops – thus going against some of the fundamental strategies of organic gardening and permaculture. Hopefully *mishnah kilayim* 3:1 demonstrates that neither the *Torah* nor the rabbis promote monocultures – historically, in ancient biblical and rabbinic times there was no such thing as huge industrial monocultures as there is today, and Jews of those ancient times had to grow a variety of crops in order to sustain themselves and their families. The laws of *kilayim* do not prohibit these varieties; they offer a plethora of methods and techniques for growing a diversity of crops together, while still maintaining the integrity of each species. This Jewish value of integrity and separation, while still cultivating diversity, is *kilayim's* dynamic tension and our unique agricultural heritage.

Post-Learning / Take Home Piece

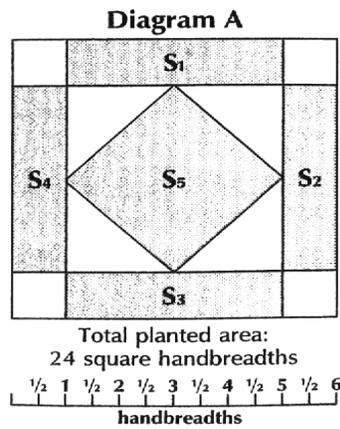
Taking into account the values and tensions of *kilayim*, how would you apply these lessons to the issue of genetically modified foods today? Is it Jewishly acceptable to manipulate the genetic makeup of our food supply when our tradition prohibits us from even planting different species too close together? How can we utilize *kilayim* as a tool for securing a food supply for our children that respects our ancient values of integrity and diversity?

Appendices / Additional Resources

Transplanting the Written Text to the Living Soil: A Summary
Mishna Kilayim 3:1

“A bed of six handbreadths by six handbreadths may be sown with five seeds – four on the four sides of the bed, and one in the middle...” *kilayim Mishnah 3:1*

This sentence has many different rabbinic interpretations, each of which offers a different geometric planting scheme. The *Tanna Kamma*—the anonymous first voice of the *Mishna*—shows this interpretation/planting scheme:



We built an *arugah* box and showed the *Tanna Kamma* with strings and compost, like this:



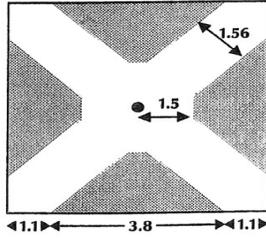
Here's our *Tanna Kamma arugah* with freshly planted greens:



See the following pages for additional diagrams and pictures.

**Mishna 3:1
according to Rash**

Diagram D



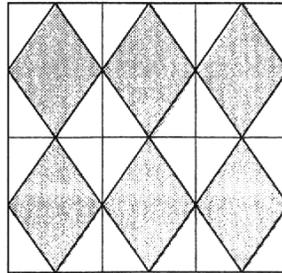
Four planted trapezoids, one on each side of the patch, and a fifth planted species in the center.

***measurements are in tefachim**



**Mishna 3:1
according to Rabbi Yehuda**

Diagram C

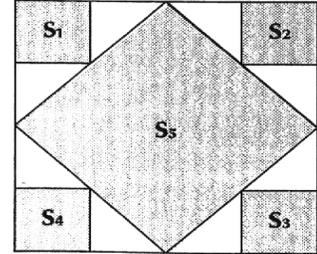


Each planted area:
3 square handbreadths
Total planted area:
18 square handbreadths



**Mishna 3:1
according to Tanna Kamma (opinion 2)**

Diagram B



Total planted area:
27 square handbreadths

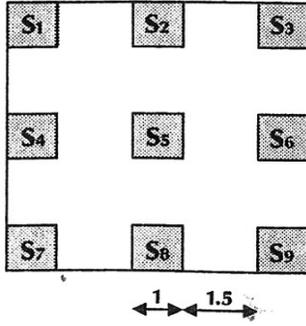
S₁ . . . S_n = species one, species two, etc.

Diagram missing



Mishna 3:1 – disputed case

Diagram E

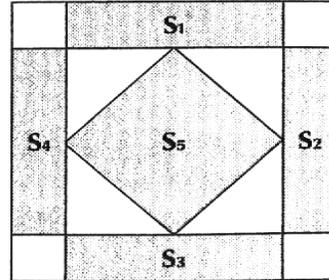


*measurements are in *tefachim*



Mishna 3:1 according to Tanna Kamma (opinion 1)

Diagram A



Total planted area:
24 square handbreadths

