The Kashrut of Commercially Sold Milk

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Introduction

In 1994, the observant community confronted a potential kashrut problem concerning milk extracted from cows that had undergone surgical procedures on their abdomens.1 Recently, some halachic authorities have raised additional questions that might potentially challenge the kosher status of all commercially sold cow's milk.2

The Talmud3 establishes the permissibility of consuming the

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milk of a kosher animal and the prohibition of consuming the milk of a non-kosher animal. Not only is the milk of a non-kosher animal prohibited, but so is the milk of a terefa, an animal from a kosher species that developed a fatal organic disease or condition, the meat of which the Torah prohibits in the verse, "Lvvasar basadeh terefa lo tocheilu" – "You shall not consume meat of a terefa in the field." The Talmud records a halacha l'Moshe MiSinai (oral dictum given to Moshe at Sinai) that there exist eighteen terefo – organic diseases or conditions – and Rambam enumerates seventy specific instances of terefo.

Although the meat of a terefa is prohibited, the Talmud demonstrates that one need not establish definitively that a given animal is not a terefa in order to consume its meat, and by extension its milk. This is a function of the principle of following the majority (roo). The Talmud outlines two types of roo: ruba deita kaman – a majority involving a closed set –

4. According to one opinion in the Talmud, milk forms from blood, and without a Scriptural source to the contrary we would assume that a kosher animal's milk is forbidden just as its blood is. According to the other opinion, we would assume that the milk of a kosher animal is included in the prohibition of consuming a limb of a live animal (eiver min hachai). Once there is a Scriptural source permitting the milk of a kosher animal, one might have thought that milk is a chidush – something that defies the usual rules – and even a non-kosher animal’s milk may be consumed, contrary to the principle that that which is extracted from a forbidden substance is forbidden (hayotzei min he'assur assur). The Talmud therefore needs to prove that milk from a non-kosher animal is forbidden.

5. The term terefa can refer either to the condition of an animal or to the animal that has such a condition.

6. Shemot 22:30. While the Talmud does not explicitly prohibit the milk of a terefa, Rif (Chulin 19a), Rashba (Chulin 9a s.v. v'chen Rabbenu Shlomo), and Rosh (Chulin 3:52) derive the prohibition from a Mishnah in Chulin (116b). Rambam (Hil. Ma'achalot Assurot 3:10) and Shutchan Aruch (Yoreh Deah 81:1) codify the prohibition.

7. Chulin 42a. All subsequent references to the Talmud and its commentaries refer to Chulin unless otherwise noted.


9. 11a –12a.
and ruba deleta kaman — a majority involving an open set. A classic instance of ruba deleta kaman is that we decide the verdict of a bet din based on the opinion of a majority of its members. Similarly, if one finds a piece of meat in front of a shopping center housing ten meat stores, nine of which sell kosher meat, one may assume that the piece of meat in question is kosher.

While a ruba deleta kaman governs items in a closed set, a ruba deleta kaman describes a natural phenomenon. One application of ruba deleta kaman is that the majority of animals from kosher species in the world do not harbor terefot. Since such a majority exists, we may assume that any individual animal came from the majority and we have the right to consume that animal’s meat and milk without needing to check it for terefot.

Ramban contends that one may not automatically rely on a majority involving a closed set (rubu dileta kaman) in a situation where there exists a significant minority (mi’ut hamatzui) of terefot. For this reason, writes Ramban, given that a significant minority of animals harbor terefot in their lungs, one must check the lungs of an animal after it is slaughtered prior to

10. This is how Shev Shmateta (6:7 s.v. u’lefi zeh) characterizes a majority involving an open set (rubu deleta kaman). R. Elchanan Wasserman (Koveitz Beurim, Shev Shmateta, 3) notes by way of illustration that even if there were only a single cow left in the word, the majority involving an open set (rubu deleta kaman) of kosher animals would allow us to assume that it was kosher, since if there would be more animals in the world the majority of those animals would be kosher.

11. 3b s.v. bodeik and Milchemot Hashem 3b.

12. Shu’ar Tivshah (191 s.v. gam) writes that a “significant minority” is close to fifty percent (“karov l’machtzah”). However, the most widely accepted quantification of a significant minority is that of Mishkenot Y’akov (Yoreh Deosh 17 s.v. vetarti), who places the threshold at ten percent. See R. Hershel Schachter in The OU Guide to Preparing Fruits and Vegetables (New York 2004), pp. 78-80. See also Bedikat Hamason Kehalacha (R. Moshe Vaye, Jerusalem 5765, Vol. I p. 116) for the opinions of various contemporary halachic authorities who advocate a lower threshold of a significant minority.
consuming its meat. This requirement is codified in Shulchan Aruch, who refers specifically to checking the lungs for adhesions (sirchot).

This checking, however, is no more than a rabbinic mandate, and when it is difficult or impossible to perform, as in where the lung was lost before it could be checked, one may consume the meat anyway. Since we cannot examine a lung while an animal is alive, we may drink milk extracted from a live animal under the assumption that the animal came from the majority of animals that do not have terefot in their lungs.

**Do a Majority of Dairy Cows Have Terefot?**

Recently, anecdotal evidence has been cited to the effect that a majority of cows raised for dairy production harbor adhesions (sirchot). One rabbi involved in kashrut supervision

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13. Ramban cites a passage in Beitzah 25b and Tanchuma Shemini 8 as evidence for his conclusion. Rashi (12a s.v. Pesach) also requires checking of an animal’s lungs, but he does not articulate a general principle of not relying on a majority in the face of a prevalent minority. Rashba (9a s.v. u’ma’ah) entertains other reasons for the requirement of checking lungs.  
15. While Ramban and Rashi refer to checking lungs for terefot in general terms, Rashba (ibid. and Torat Habayit, Bayit 2 Sha’ar 3), Rosh (3:16, see Ma’adanai Yom Tov 8), Tur Shulchan Aruch, and Shulchan Aruch (Yoreh Deah 39:1) refer specifically to checking for sirchot, adhesions on the lungs. The biological definition of a sircha is “the adhesion of the folia of the rib membranes to the pulmonary membrane. These folia adhere as a result of pneumonia and of pleuritis” (Mazon Kasher Min Hachai, R. Israel Meir Levinger, Jerusalem, 1978, p. 503). Shach (39:2) claims that lungs must be checked for other terefot as well. Pri Megadim (Sha’arei Deah 39:2) quotes from Teseut Shor that while we check lungs for all terefot, the requirement to check was instituted only because of adhesions. See Darchei Teshuvah (39:15) for a further discussion of this issue.  
16. This is the opinion of, among others, Ramban, Rashba, Ramo (39:17), and Shach (39:3,8). The questioner in Shu’t Rionsh 263 refers to Orchat Chaim who quotes a biblical source for checking the lungs.  
17. According to Shulchan Aruch (39:2) the permissibility is unequivocal, whereas according to Ramo one may only consume the meat in a situation of significant financial loss (hefsed merubah).
in Johannesburg, South Africa, reported that 95% of dairy cows that are slaughtered contain adhesions. Another rabbi involved in kashrut supervision in the United States observed one dairy farm in which 80% of slaughtered cows had adhesions. While these two accounts do not necessarily reflect a representative sample (and a representative sample would be nearly impossible to procure as dairy cows are generally not slaughtered for kosher meat and thus are not posthumously examined for terefot) what would the halacha say if we were able to establish that a majority of dairy cows do contain terefot?

At first glance, absent a majority of kosher cows, we would no longer have the right to assume that any given cow is kosher. Following this logic, we would not be allowed to consume any milk until the cow that provided the milk was slaughtered and found to be kosher. However, there are numerous other factors that warrant a lenient conclusion.

Shu"t Tiferet Zvi addresses the question of how we can consume milk and butter in places where the number of terefot equals the number of kosher cows. He appears to present the following three distinct grounds for leniency:

1. How do we define a majority?

The only evidence that a majority of cows contain terefot comes from an analysis of cows that are slaughtered. This does not take into consideration living cows. It may well be the case, argues Tiferet Zvi, that a majority of all cows – when we consider both living and slaughtered cows together – do not contain terefot. In our situation, even were we to establish through a reliable sample that 80% of slaughtered dairy cows

contain adhesions, that would not necessarily indicate that a majority of living (i.e., milk-producing) cows contain adhesions. This is because according to Ramo (81:2), absent any contrary evidence, we need not assume that an adhesion existed for more than three days prior to shechita.20

From a biological standpoint, R. Israel Meir Levinger21 points out that as terefot primarily develop due to diseases, the prevalence of terefot increases with the age of an animal. In a study involving over 8,000 cows in Israel,22 R. Levinger discovered an average terefa'h rate of 6.73% for calves (ages one and two) compared with 14.22% for cows (ages four and above).23 As slaughtered dairy cows tend to be older, their terefa'h rates should not be considered representative of cows in their milking prime.

20. R. Yisroel Belsky (Mesorah, Adar 5765, p. 63), however, notes that if a cow’s lungs are full of adhesions, as is often the case, it would be difficult to assume that all the adhesions developed in the last three days of the cow’s life. Similarly, R. Dov Weiss (Habe'er, Adar 5764, p. 85) points out that if a high percentage of cows routinely have adhesions, we may not assume that all the cows developed their adhesions in the last three days of their lives. See also footnote 27.
22. Ibid., p. 304.
23. R. Levinger reported a 13%-16% overall terefa'h rate in Yugoslavia, and a rate of 25%-30% for oxen and 40%-50% for calves in other European countries. He notes that terefa'h rates tend to be lower in Israel because there is almost no market for non-kosher meat (hefesd merubah) and therefore greater effort is extended to attempt to rule leniently regarding questionable terefa'h (pp. 298-301, 506). R. Yisroel Belsky (Mesorah, Adar 5765, p. 63) refers to terefa'h rates of 40%-50%. R. Levinger also compared the terefa'h rates of cows raised for beef and cows raised for dairy in Israel. He discovered no statistically significant difference among older cows. However, the rate of terefa'h in calves raised for dairy was almost double that of calves raised for beef (15% to 5%). R. Levinger attributed the discrepancy to the prevalent practice of dairy farms to wean their calves in a drastic fashion. The change of diet leads to colds and coughing, which cause adhesions to develop (pp. 331-332, 500-501).
2. Presumption of Status (Chazakah)

Tosafot assume that the presumption of permissibility (chezkat kashrut) of an animal is inoperative. Under the normal rules of presumption of status (chazakah), a permissible status that previously existed continues to exist until the point at which we can definitively prove otherwise. Thus, if we discovered a terefa in an animal, milk that had been extracted up until the point at which we could definitively prove that the animal developed the terefa would be presumed kosher. However, since there was never a point at which we had definitive knowledge that a given animal was kosher, as at any point in time the animal may have developed a terefa, Tosafot claim that the animal lacks a presumption of permissibility. Rishonim refer to the presumption of status (or lack of it) of such an animal as a chazakah shel nitbarirah bisha’atah, a chazakah that was not clarified in its time. Tosafot rule that if someone produces cheese from the milk of a few cows and subsequently slaughters one of the cows and finds it to be a terefa, all the cheese becomes prohibited. Absent a presumption of permissibility, we must assume that the terefa was present in the animal prior to the milking, and thus the cheese contains milk from a non-kosher source.

Rashba quotes R. Shimshon ben R. Shimshon, who argues with Tosafot and assumes that the majority of kosher animals creates a presumption of permissibility even in regard to terefa. Shulchan Aruch partially adopts this opinion and presents three categories of terefa. Some terefa, like an extra digit, clearly existed from birth, and milk extracted from such an animal at any time is not kosher. Other terefa, like a hole in the membrane of the brain, may have developed at the moment before death, and any milk extracted from such an animal while alive is kosher, as we rely on the animal’s

24. 11a s.v. atya.
25. 11a s.v. u’vishem, see also Rosh, 1:16.
26. Yoreh Deah 81:2; see Taz, 81:3.
original presumption of permissibility. A third group of terefot takes three days to develop. If a slaughtered animal harbors a terefah of the third class, Shulchan Aruch holds that its presumption of permissibility is compromised, and any milk extracted, even prior to the last three days of its life, may not be consumed. Ramo, however, rules that while milk obtained during the last three days is prohibited, any milk extracted previously remains permissible. Ramo considers adhesions of the lung as belonging to the third category. Tiferet Zvi writes that since every individual animal has a presumption of permissibility, as most of the terefot that exist were likely not present at birth, we may rely on that presumption of status (chazakah) to drink milk and assume that the terefot developed only after the milk was extracted.

3. Double Doubt (Sefek Sfeika)

Tosafot, who rule stringently about the milk extracted from an animal found to be a terefah, write that if the terefah discovered in the slaughtered animal is an adhesion, the cheese that was produced from its milk may be consumed because of a double doubt (sepek sfeika): First, there exists a doubt as to whether the adhesion is a genuine terefah, as we are stringent regarding adhesions due to our lack of competence in identifying what adhesions are authentic terefot. Secondly, even if it is a bona fide terefah, perhaps it developed only after the milk was extracted. Shulchan Aruch records this comment of Tosafot. Tiferet Zvi notes that even if we were not to accept the previous grounds for leniency, we should permit milk based on this double doubt, as most of the terefot found in cows are adhesions.

27. Darchei Teshuva (81:53) quotes Pri Tenuah (39:163), who notes that if an adhesion is so thick that it could not have formed in only three days, any milk extracted in the previous twelve months is prohibited.
28. Ibid.
4. The Status of Our Terefot

Other poskim have suggested additional grounds for leniency. Sha'agat Aryeh 30 provides a corollary to Tiferet Zvi's last argument. Or Zarua 31 rules that one may not slaughter an animal on Yom Tov in a location where the majority of animals are terefot. 32 Sha'agat Aryeh writes that although in his time (the work was published in 1756) a majority of animals had terefot, slaughtering on Yom Tov was still permissible. This was because the vast majority of terefot are found on the lung, and the later authorities adopted extra stringencies regarding the lungs, considering many permissible blemishes to be terefot. From a technical halachic perspective, many adhesions that we consider to be terefot are not really terefot. 33, 34

30. 64, cited in the aforementioned Pitchei Teshuvah and Darchei Teshuvah.
31. Quoted in Hagahot Asheri, Beitzah 4:15.
32. Strictly speaking, slaughtering on Yom Tov is permissible when meat is needed for consumption on that day. Or Zarua prohibits slaughtering when there is more than 50% probability that the slaughtered meat will not be kosher.
33. Pri Chadash (39:3), Tevuat Shor (39:2), and Kiseh Eliyahu (81:1), all cited in Darchei Teshuvah (81:18), make a similar observation about how we assess terefot. While Tiferet Zvi and Sha'agat Aryeh refer to locales where the number of terefot equals the number of kosher animals, Kiseh Eliyahu writes that in Alexandria, Egypt, in his day (1750's) more than 90% of animals had terefot. He nevertheless assumes that milk may be consumed because the majority of what they considered terefot were not authentic terefot. Teshuvot Rashi 62 (New York 1943, cited partially by R. Dov Weiss) records that half (according to a variant text: a majority) of all animals have adhesions, but not one in a thousand have other terefot. See also Shu't Chatam Sofer (Yoreh Deah 19).
34. R. Ovadia Yosef (Yabia Omer Vol. 5 Y.D. 3:3) invokes this argument in a different context. Shulchan Aruch (39:10-11) forbids miuch u'mishmush, removing or eliminating minor adhesions through applying pressure or smoothing them down. This is the basis of the widespread practice of Sephardic Jews (and some Ashkenazic Jews) to eat only "glatt ('smooth') Beit Yosef" meat. Ramo (39:13) allows the practice of miuch u'mishmush because he assumes that any authentic adhesion would not be removed by this process. R. Ovadia Yosef addresses the question of whether a Sephardic Jew who adheres to Shulchan Aruch's position may eat meat at a family "simcha" without knowing whether the meat is "glatt." He proposes that
5. The Status of a Safek Tereyah's Milk

R. Ovadiah Yosef\(^35\) notes that there is an opinion among Rishonim that consuming the milk of a tereyah is only prohibited miderabbanan, rabbincally. Mordecha\(^36\) quotes Maharam as holding that the juice (tzir) of a tereyah is only prohibited rabbincally, and Tosafot\(^37\) equate tzir with milk. R. Yosef observes that the Talmud itself implies that milk of a tereyah is not biblically prohibited. The Talmud\(^38\) asks how R. Meir, who does not hold of a majority involving an open set (ruba dileta kaman), could ever eat meat, given that one could never establish definitively that a slaughtered animal did not have a tereyah, as perhaps there was a preexisting hole at the point where the shechita knife cut the animal. If the milk of a tereyah were biblically prohibited, reasons R. Yosef, the Talmud should have asked how R. Meir could ever drink milk.\(^39\)

According to this opinion, in a case of a safek tereyah one should be able to consume the animal’s milk based on the principle of safek dirabbanan l’kula – we rule leniently in a case of doubt concerning a rabbinic law. R. Yosef points out that the accepted opinion\(^40\) is that the milk of a tereyah is biblically prohibited. He is willing, however, to invoke the minority opinion in conjunction with other factors in certain cases of doubt.\(^41\)

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one may be able to rely on a double doubt (sefek seika); perhaps the meat is in fact “galt" and even if there was an adhesion that was removed through miysch u’mishmush, perhaps the given adhesion was not an authentic tereyah.

36. Chulin 671.
37. Bechorot 6b, s.v. le’esor.
38. 11b.
39. There is an obvious rejection of this proof. The Talmud specifically asks about meat because, as the Talmud proceeds to observe, there are times when one is religiously obligated to consume meat (the Paschal offering and other koschim). There is never a religious obligation to drink milk.
40. Tosafot 99b s.v. shani, Rashba 9a.
41. See also Nefesh Chaya (Yoreh Deah 4).
Mishkenot Ya’akov⁴² argues that one might prohibit the meat of a safek terefah while permitting its milk. Rashba⁴³ quotes the opinion of Rashi’s teachers who prohibited the meat of an animal whose lungs were lost before being checked. Rashi disputed this practice, arguing that it would be hypocritical to have permitted the milk of such an animal and now to prohibit its meat. Those who argued with Rashi apparently were not bothered by his question and assumed that one could be more lenient regarding the milk of a safek terefah than with its meat.

Mishkenot Ya’akov suggests that this is because the presumption of permissibility of milk is stronger than that of meat. This is because the milk of an animal is permitted even when it is alive, whereas the meat of a live animal is included in the prohibition of eating the limb of a live animal (eiver min hachai). He proceeds to note that while the Or Zarua quoted above prohibited slaughtering animals on Yom Tov in a place where the majority of animals were terefot, there is no evidence that people in those locales refrained from drinking milk.

6. Terefah Einah Chayah

There may be another way of demonstrating that many of the adhesions that we disqualify are not authentic terefot. The Talmud⁴⁴ records a dispute whether an animal with a terefah is capable of surviving. We accept the position that terefah einah chayah, a terefah will not live for more than twelve months. Ramo⁴⁵ rules based on his understanding of Rashba⁴⁶ that if we observe a vaday terefah – a condition that is definitely a terefah – and the affected animal lives for more than twelve months, the animal remains prohibited. However, if we observe a safek

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42. Yoreh Deah 17 s.v. u’mah.
43. 9a.
44. 43a, 57b.
45. Yoreh Deah 57:18.
46. Shu’t 1:98.
terefah — a condition the status of which is uncertain — and the affected animal lives for more than twelve months, we may treat the animal as kosher.47,48

While Ramo’s ruling, strictly speaking, applies to a case in which we observe an external condition and are unsure whether it qualifies as a terefnah, we may nevertheless suggest the following argument regarding the question of how many dairy cows have adhesions on their lungs: If 80% of

47. Rashba addresses the question of how to relate to an animal with a terefnah that lives for more than twelve months. He emphatically denies the possibility that an animal with a terefnah could ever live for more than twelve months. If an animal with a terefnah appears to have survived for that long, then it must be that we lost track of time or that we confused the animal with a different animal. The only exception is an animal with an extra digit that has the status of a terefnah not because it will die within a year, but because of the halachic principle that something extra is the equivalent of something missing (yeter k’natul dama’ei). Since an animal that is missing a digit has the status of a terefnah because it will die within twelve months, an animal with an extra digit is accorded the same status. Rashba does explicitly refer to a distinction between a safek terefnah and a vaday terefnah in his commentary on Chulin (42a s.v. chayah). Shach (Yoreh Deah 57:48) notes that according to Rashba, if an animal with a terefnah lives for more than twelve months it must be because of a miracle. He quotes Maharash (Chulin 3:80) who holds that terefnah einah chayah is not an absolute principle but an indication of an overwhelming majority. Maharash allows for the possibility that one out of every thousand terefnot may live for more than twelve months. Mirri (42a s.v. masoret) writes that if an animal with a terefnah survives for more than twelve months it is a fluke. His formulation would seem to allow for a more frequent instance of terefnot that survive for twelve months than would Maharash. Tosefot HaRosh (Niddah 2b s.v. heicha) appears to say that terefnah einah chayah is no more than a simple majority. For a further discussion of Rashba’s position, see R. Neriyah Gotel, Hiskhtnout Hatevaim Behalacha, Jerusalem 1995, pp. 32-39.

48. Shach (57:48) and Chochmat Adam (Binat Adam, Issur V’ heter 26, quoted in Pitchot Teshuvot 48:2) contend that the twelve-month test can render an animal kosher not only in the case of a safek in metziut — a doubt as to whether a given blemish is indeed a blemish — but even in a case of a safek in din — a doubt as to how we rule regarding the status of a given blemish. Pitchot Teshuvot quotes others who dispute this position. See also R. Ovadia Yosef (Yabia Omer 8, Yoreh Deah 2:3) who quotes over a dozen authorities who are of the former opinion.
slaughtered cows harbor adhesions, one of two explanations must hold true. If the adhesions all developed in the last year of the cows’ lives, we may still assume that the majority of living cows in their prime are not terefot. If the adhesions developed earlier, the fact that a large number of cows do not drop dead every year\(^{49}\) must indicate that most of what we treat as terefot are not authentic terefot.\(^{50}\)

One may object, however, that as modern medicine perceives many terefot as not being fatal, it would be difficult to arrive at any definitive conclusions from the fact that animals harboring adhesions generally live for more than twelve months. This is borne out by a comment of B’chor Shor\(^{51}\) regarding Rambam’s position. Rambam\(^{52}\) writes that even if the medical knowledge of the time indicates that some terefot are not fatal, we must still follow Chazal’s list of terefot. Yet, Rambam also rules that if an animal with a doubtful terefah lives for more than twelve months, we may assume that the questionable blemish was not an authentic terefah. B’chor Shor asks how the twelve-month test could prove anything according to Rambam, if the list of terefot is binding even contrary to scientific realities. He is forced to answer that the twelve-month test only works for the type of terefah that even modern medicine considers fatal. If modern medicine does

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49. According to the United States Department of Agriculture National Health Monitoring System Dairy 2002 survey, approximately five percent of dairy cows die on farms annually, as opposed to only one to one-and-a-half percent of beef cows. The same survey indicated that in 2001 approximately 25.5 percent of dairy cows left herds permanently, with 94 percent of those culled (sent for slaughter). About half of the cows culled were removed from dairy production due to disease or injuries and the other half were removed because of suboptimal productivity (Frank Garry, “Current Mortality Rates on U.S. Dairies,” Western Dairy News, February 2006, pp. W-43-4).

50. R. Dov Weiss (Habe’er, Adar 5764, pp. 77-78) raises the possibility that the twelve-month test may prove something about the status of our adhesions.

51. Chulin 58a.

not view adhesions as fatal, the twelve-month test should be of no value to us.

The Status of Milk Obtained from Large Numbers of Cows

Even if we consider a majority of dairy cows to be kosher, we must contend with a second potential problem. Until the mid-nineteenth century, milk production in the United States was dominated by family farm operations that owned only a few cows and milked them by hand, providing for customers in their immediate vicinity. As the technologies of refrigeration, transportation, and electric milking advanced through the first decades of the twentieth century, milk preservation techniques improved and production increased. Contemporary milk production is concentrated in large dairy farms where cows are generally milked in assembly-line-like parlors, with milk flowing through pipelines from the milking machines to bulk tanks that typically hold tens of thousands of gallons of milk.

This modern method of milking cows raises the following question: Let us assume, for argument's sake, that 10% of dairy cows (Mishkenot Ya'akov's threshold of mi'ut hamatzui) harbor authentic terefot. As we noted earlier, if we extract milk from any single cow we may drink the milk because of the

53. Professor Frank Garry of Colorado State University indicated (in personal correspondence dated December 20, 2006) that firm adhesions are scars from old inflammatory diseases that the animal survived, while adhesions of softer consistency represent inflammation of active diseases that could kill the animal. The implication of this description is that diseases, and not adhesions per se, kill animals.

54. The United States Department of Agriculture documented that in 2005, 8.4% of commercially marketed milk came from dairy farms of fewer than 50 cows, while 44.5% of milk came from dairy farms with over 500 cows (Agricultural Statistics 2006, VIII-5).

55. Encyclopedia Americana, 2005 edition, Vol. 8, pp. 428-429. Information about the size of bulk tanks was obtained from the Orthodox Union Kashrut Division.
majority involving an open set \textit{(ruba d’leta kaman)} of cows that are kosher, and we do not have to be concerned that perhaps this cow is a member of the minority. However, if the milk of tens or hundreds of cows were mixed together in the same bulk tank, it is implausible that none of the milk came from cows that have \textit{terefot}. Is a majority involving an open set \textit{(ruba d’leta kaman)} a halachic reality that allows us to view every individual animal as exhibiting a presumption of permissibility \textit{(chezkat kashrut)} and permit all the milk, ignoring the larger statistical picture that would necessitate a contrary conclusion? Or does a majority involving an open set only operate on a small scale but not when it runs counter to a statistical reality? If the latter is the case, we would only be permitted to consume milk from a bulk tank if there are sixty times as many kosher cows whose milk was extracted as cows with \textit{terefot}.\footnote{Even if there would be sixty times as many kosher cows as cows with \textit{terefot} we would still have to contend with the problem of \textit{ein niv Rav} \textit{issur e’chatchila} – one may not prospectively nullify a prohibited substance. See \textit{Har Zvi} (Yoreh Deah 36) regarding a similar application of \textit{ein niv Rav} \textit{issur e’chatchila. Taz} (Yoreh Deah 99:10) claims that the prohibition of benefiting from improper nullification does not apply where the beneficiary is unaware that nullification was effected on his behalf. R. Akiva Eger quotes \textit{Shulchan Aruch} (498) as dissenting, prohibiting benefiting from nullification that was effected on behalf of any member of a large constituency. See R. J. David Bleich (cited in footnote 1) for sources that address nullification effected by a non-Jew.}

In other words, the \textit{terefah} rate would have to be lower than 1.6\%. Although biblically if a prohibited substance is mixed with a permissible substance the prohibited substance is nullified in a majority of the permissible substance, there is a rabbinic enactment that the nullification of liquids can only be effected with a 60:1 ratio.\footnote{\textit{Shulchan Aruch} 98:1.}

1. The Stringent Opinion

R. Gavriel Yehuda Illowitz\footnote{\textit{Kovetz Beit Aharon V’Yisrael}, Kislev-Tevet 5763, pp. 66-76; Nissan-Iyyar} contends that a majority
involving an open set (rubă dileta kaman) cannot allow for a permissive ruling contrary to a statistical reality. He reasons that it is logically impossible that we would be allowed to consume a mixture that, based on the laws of probability, almost definitely contains prohibited substances. R. Illowitz thinks that this is the assumption of Mishkenot Ya‘akov. The Mishnah records that according to Rabbi Yehudah, the Kohanim would fill a cup with the blood of the Paschal offerings that spilled on the floor of the Temple Courtyard. They would sprinkle the blood of this mixture so that in case the blood of any individual Paschal offering had inadvertently not been sprinkled, its owners would still fulfill their obligation through this sprinkling. The Talmud links this opinion to Rabbi Yehudah’s general position that there can be no nullification of like substances (min bimino lo batel). Likewise, blood cannot nullify blood (ein dam mivatel dam). The blood of any single Paschal offering that fell on the floor and got mixed up with other blood would retain its identity.

5763, pp. 124-136.

59. R. Hershel Schachter in the aforementioned letter supports this position. In a letter dated 28 Kislev 5767 he explains that majority (rov) generally functions as a clarification of the facts (birur), as opposed to a presumption of status (chazakah), which instructs us how to act in a given circumstance (hanhagah). (See R. Elchanan Wasserman, Kovetz Beurim, Shev Shvatet, 4.) A hanhagah is only relevant in the absence of a birur. This is why a majority (rov) overpowers a presumption of status (chazakah) when the two suggest opposite conclusions (rubă v’chazakah rubă adif). This also explains the opinion of Tosafot (Avodah Zarah 41b s.v. v’ein safek) that a weak majority (51%) does not overpower a presumption of status, as weak majority cannot function as a clarification. (See R. Schachter in Ginat Egoz, New York, 2001, pp. 63-64.) In light of this explanation, asks R. Schachter, how can we rely on the presumption of kashrut of each individual animal when the milk of multiple animals gets mixed together, even if that presumption is based on a majority involving an open set (rubă dileta kaman), and ignore the stronger clarification provided by the statistical likelihood that there is a problematic percentage of non-kosher milk?

60. Yoreh De‘ah 16 s.v. vira’iti.

61. Pesachim 64a.

62. Ibid. 65b.
and the sprinkling of any mixture of blood would count for all the offerings whose blood had spilled.

Mishkenot Yaakov poses the following question: An animal with a tereftah is disqualified from sacrificial use. Thus, since Rabbi Yehuda holds that blood cannot nullify blood, the blood of any animal with a tereftah would disqualify the entire mixture of blood. If a prevalent minority (mi‘ut hamatzui) of animals harbor tereftot, how could it be that not a single animal brought as a Paschal offering had a tereftah? Mishkenot Yaakov is forced to conclude that tereftot in the time of the Beit Hamikdash were not as prevalent as they were in later times. R. Illovitz claims that Mishkenot Yaakov’s question assumes that if there were a significant instance of tereftot, we would have to view a mixture of the blood of multiple animals as including the blood of tereftot.

It would seem, however, that a careful reading of Mishkenot Yaakov leads to the opposite conclusion. His question is that if there were a prevalent minority (mi‘ut hamatzui) of tereftot in the lungs, they would have checked all the lungs of the Paschal offerings and in all likelihood would have found some adhesions. Subsequently, they would not have been able to sprinkle the mixed blood, as the mixture would have contained blood from the animals with adhesions, and R. Yehuda holds that prohibited blood may not be nullified. Mishkenot Yaakov then suggests that the instance of adhesions in the time of the Beit Hamikdash did not reach the threshold of a prevalent minority (mi‘ut hamatzui) and they did not need to check the lungs. Since they did not check the lungs, there was no positive knowledge that any tereftot existed, and they were able to sprinkle the mixed blood.

64. The Talmud (Pesachim 64b) records that on one occasion during the Second Temple period, King Agrippas commissioned a census of the number of Paschal offerings offered. That year they estimated that 1.2 million Paschal offerings were brought.
2. The Lenient Opinion

Ramo,\textsuperscript{65} codifying a position of \textit{Issur V’heter He’aruch},\textsuperscript{66} appears to hold that we may rely on a \textit{rov} even in our situation. \textit{Issur V’heter} addresses a case in which milk from sixty cows is made into cheese and subsequently one of the animals is slaughtered and found to be a \textit{tereifah}. He rules that we may assume that none of the live animals have \textit{tereifot} and consume the cheese without checking any of the other animals. If the only \textit{tereifah} is the animal that was slaughtered, there will be sixty times as much kosher milk as non-kosher milk and the non-kosher milk will be nullified. Even though a prevalent minority (\textit{mi’ut hamatzui}) of animals harbor \textit{tereifot} in their lungs, and one would therefore expect (working with a 10% threshold for \textit{mi’ut hamatzui}) that among sixty cows approximately six of them (much more than 1.6%) should be non-kosher, we can nevertheless assume that every individual cow is kosher until proven otherwise.\textsuperscript{67} In our case as well, even if the milk of hundreds of cows gets mixed together, we may rely on the independent presumption of permissibility of each individual animal and permit all the milk.\textsuperscript{68}

\textsuperscript{65} Yoreh Deah 81:2.
\textsuperscript{66} 69:2.
\textsuperscript{67} If ten percent of cows in the general population have \textit{tereifot}, the probability that in a random sample of sixty cows none of them will have \textit{tereifot} is approximately 0.18% (9\textsuperscript{0.6}). The probability that \textit{bitul bishishim} would be operative (namely that one or no cows will have \textit{tereifot}) is approximately 1.38% (60(9\textsuperscript{0.6})(1)+18). (Thanks to Dr. Stanley Ocken of CCNY for providing the relevant mathematical formula.) If we accept that majority (\textit{rov}) must take into account statistical realities, would we prohibit milk if there is merely a 51% probability that there are more than 1.6% of cows with \textit{tereifot} in the given sample? Assuming a 10% instance of \textit{tereifot} in the general cow population, in a mixture of milk from seven cows, there is only a 48% probability that none of the seven cows will have \textit{tereifot} (9\textsuperscript{-0.48}). R. Schachter concedes that a 51% probability forms a weak majoritiy (see footnote 58) and does not prohibit the milk. However, it is difficult to pinpoint the exact threshold at which a majority becomes strong enough to pose a problem (somewhere between 51% and 90%).
\textsuperscript{68} See Shach (81:6) and Pri Megadim. R. Levi Yitzchak Halperin (pp. 169-171) and R. Yosef Meir Feldman (Kovetz Beit Aharon V’Yisrael, Av-Eitul
3. The Novel Leniency of Marcheshet

Even if we accept the stringent opinion regarding the mechanics of majority (rovi), there may still be grounds for leniency. R. Chanoch Henach Eiges proposes a fascinating rationale for permitting milk extracted from an animal with an adhesion. Rashi and Tosafot argue about the nature of an adhesion. Rashi believes that an adhesion always contains a hole. (A hole in the lung is one of the terefot quoted in the Mishnah.) Tosafot hold that an adhesion need not contain a hole; the reason we treat an adhesion as a terefa is that we assume that it eventually will develop a hole.

Marcheshet contends that the classic terefa are only those that place the animal in a currently fatal condition. Only these terefot are subsumed under the halacha l'Moshe miSinai and the biblical injunction of “Livesar basadeh terefa lo tocheilu” — “You shall not consume meat field of a terefa in the field.” According to Tosafot, an adhesion does not fall into this

5763, pp. 107-108) cite this Ramo in addressing our question. R. Yosef Meir Feldman (Kovetz Beit Aharon V'Yisrael, Av-Elul 5763, p. 107) suggests another proof for this position from Shulchan Aruch 84:8-10. See also teshuvah of R. Yisroel Belsky in the possession of the Orthodox Union Kashrut Division, dated 27 Tishrei 5767. R. Zalman Nechemia Goldberg and R. Asher Weiss (Habe'er, Nissan 5763, pp. 140-146) propose additional arguments to support this position.

69. R. Dov Weiss (Habe’er, Adar 5674, pp. 78-83) quotes Acharonim (Chiddushei HaGra Ch 169:5) who claim that the forbidden derivative of a prohibited substance (yotzei min ha’assur) is not viewed as the source substance but rather as a member of a new prohibited category. Based on this understanding, he suggests that the new prohibition of yotzei min ha’assur may only be applied if we know definitively that a given animal is a terefa. Absent such knowledge, we could permit the mixed milk, even if statistically there are likely more than a problematic percentage of cows with terefa. R. Moshe Heinemann (Mesorah, Adar 5755, pp. 76-78) provides another original suggestion that would permit the milk even according to the statistical perspective of majority.

70. Marcheshet 1:29.
71. 46b s.v. let.
72. 47b s.v. haynu.
73. Shemot 22:30.
category, as it has not yet necessarily developed a fatal hole. However, since we know that an animal with an adhesion will eventually develop a fatal condition, it is prohibited based on the verse "V’zot hachayah asher tochelu" - "And this is the animal that you shall eat,"74 from which the Talmud75 derives that an animal that will live may be consumed and an animal that will not live may not be consumed. This latter prohibition is an issur aseh, a prohibition derived from a positive statement. Maggid Mishneh76 writes that according to Rambam the principle that that which is extracted from a prohibited substance is prohibited (hayotzei min ha’assur assur) does not apply to prohibitions formulated as an issur aseh. Thus, according to Tosafot’s understanding of adhesions, the milk extracted from an animal with an adhesion should be permitted. Marcheshet is ultimately unwilling to rely on his suggestion because he notes that one could construct a counter double doubt (sefrek sfeika). Perhaps the halacha is in accordance with Rashi’s opinion that an adhesion is a classic terefa, and even if the halacha is in accordance with Tosafot’s opinion, perhaps this particular adhesion had a hole.77

Conclusion

In the contemporary situation, there appears to be no credible evidence that a majority of dairy cows harbor adhesions. It is, however, quite likely that a prevalent minority (mi’ut hamatzui) of cows have terefof, such that more than 1.6% of milk that gets mixed together comes from such cows. To date, while a few individuals have stopped drinking commercially

74. Vayikra 11.2.
75. 42a.
76. Hil. Maachalot Assurot 2:3.
77. R. Schachter, in the second letter, raises the possibility of relying on Marcheshet, since we are only dealing with a rabbinic prohibition, as biblically nullification is accomplished with a simple majority. He points out that we would still have to assume that there is less than a 1.6% instance of other terefof in cows.
sold milk, major kashrut organizations have endorsed the continued consumption of milk, following the implication in *Shulchan Aruch* that we may assume that every individual cow comes from the majority of cows that are kosher, even if such an assumption contradicts a statistical reality.